

# Innovative Digital Tools for Better Public Education

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# Phase 1

## Community Values

1 What does “fairness” mean to you?

2 How could we produce less garbage?

3 What’s *most* important to you?

4 What *else* is important to you?  
How could the Region support you?

## Types of User Fees



### Monthly Flat Fee

Billed a monthly fixed-fee regardless of volume produced.



### Acceptable Garbage Bags

Purchase specific bags used for disposal of waste at different prices based on size and type of bag.



### Garbage Bag Tags

Purchase bag tags and attach to all bags or extra bags at different costs.



### Collection Bins

Charged a one-time cost for bins and ongoing waste collection and processing.



### Pay by Volume/Weight

Charged based on the amount of waste produced.



### Hybrid

Combination of any of the above user fee systems.

The Region of Peel currently uses a hybrid system.

# Phase 2

## *Ways it could work*

1

**KEEP THE  
SYSTEM AS-IS**

Rely on the  
tax-base

2

**IMPLEMENT  
SOMETHING  
NEW**

Rely solely on a user  
fee system

3

**A COMBINATION  
OF BOTH**

Rely partially on the tax  
base and partially on a  
user pay system

What do you *like* about this scenario?

What do you *dislike* about this scenario?

How might this scenario *impact* you?

# Values-Based engagement

DIVE IN



What we typically ask for.



Perspectives and Opinions



What we SHOULD be asking for.



Values  
Concerns  
Beliefs

Fears  
Drivers  
Feelings



# So, how do residents feel about the funding options?



**“Enough is enough. This is just greed.”**



**“I would LOVE this system and it’s ability to give freedom for the user to decide.”**



**“I won’t be able to afford groceries!”**



**“Stop f!\*@ing wanting more of my money @&%holes!!”**



**“I might have to start robbing banks to afford this.”**

# The challenge

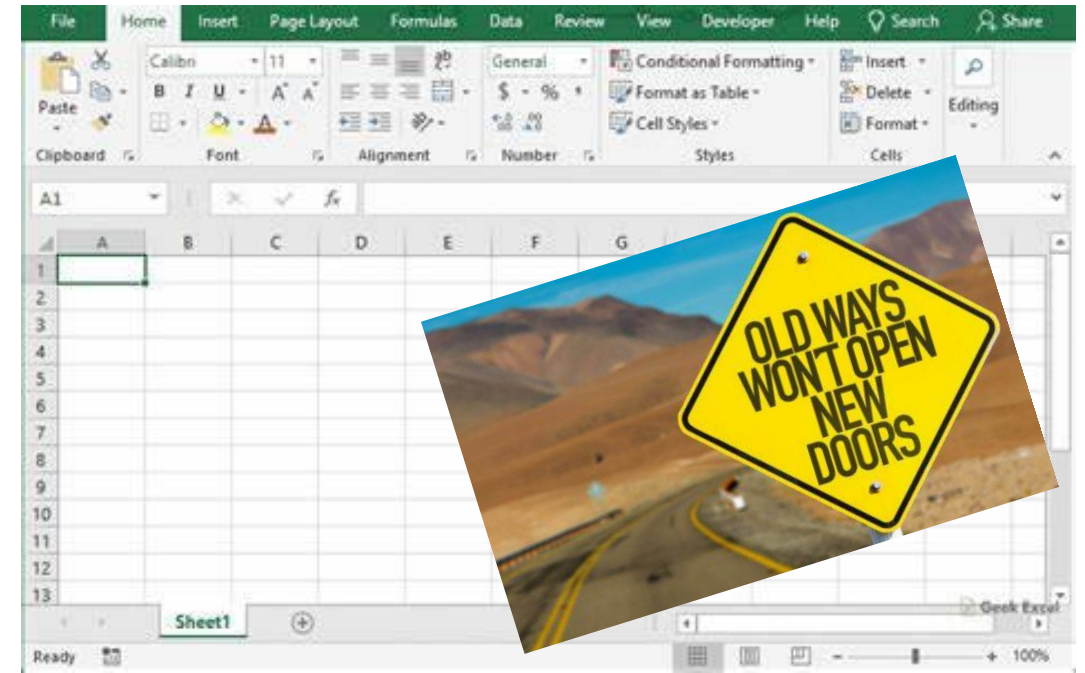
7,000+ responses

30,000+ unique comments

What do people want?

What is **motivating** their opinion?

*What's the best possible way we can go about analyzing this data?*



## Status quo wasn't good enough

- Limited data capacity
- Lack of real-time collaboration
- Data cleaning and formatting issues
- Limited data visualization options
- Statistical limitations
- Lack of automation and customization
- Data security and integrity
- Scalability issues

# Let's look at the data

Web-based online open house questions

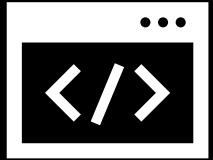
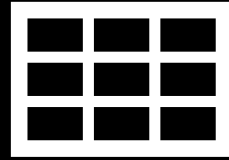


Table of response text



**7k+**

respondents

**31k+**

text blocks

**750**

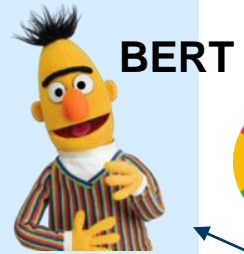
printed pages

## Data Snapshot – one resident's response

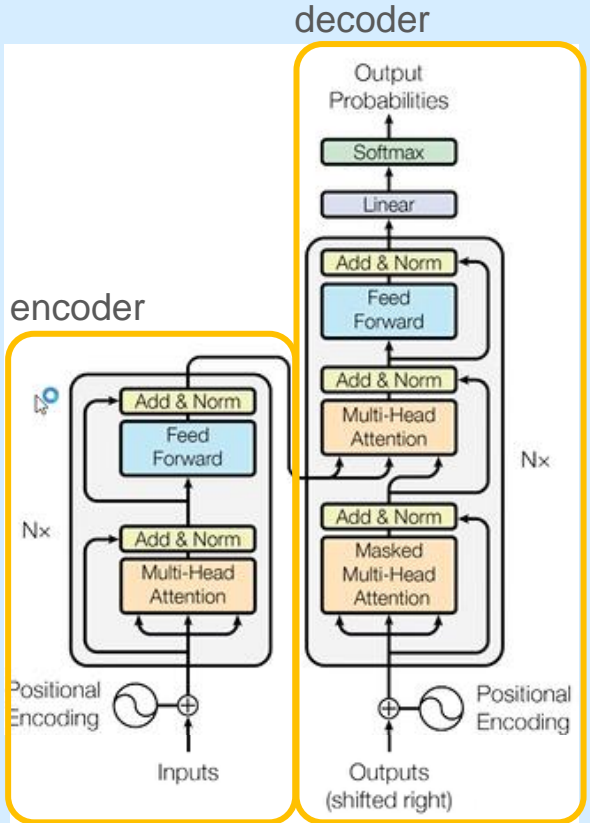


Scenario	Likes	Dislikes	Impact
User Fee	Nothing	I already pay a lot of taxes. I don't want to pay extra.	I will have less money to pay for living expenses.
Tax Based	It works fine the way it is.	Nothing	No impact = good for me.
Hybrid	Nothing	Makes life unnecessarily more difficult	Makes life unnecessarily more difficult. Have to keep track of how much I'm being charged and if the Region made any wrongful charges (believe me, the Region will).

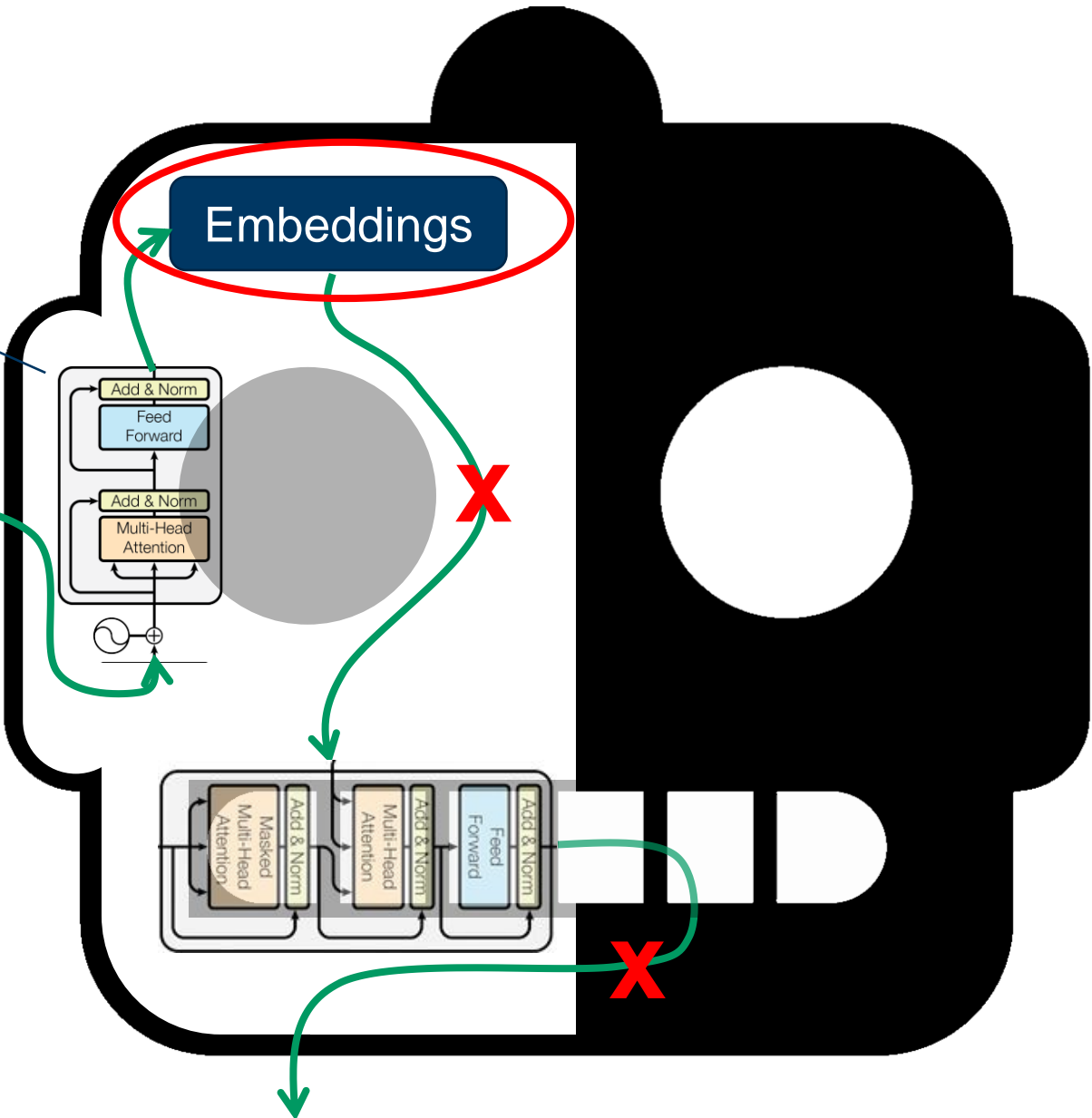
# Converting Text to Numbers



## Transformer architecture

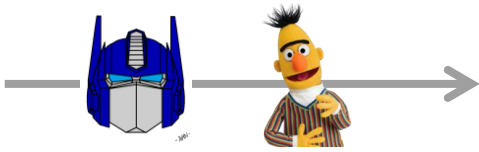
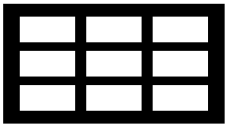


*"I don't like taxes."*



*"je n'aime pas les impôts"*





# Embeddings??

## What do people want?

Classify as like/dislike (Supervised Learning)

- **Train:** Manually classified 10% of responses
- **Optimize:** Competition between Train 25 classifiers (ML + DL) (300 models total), and choose the best algorithm/parameters
- **Classify:** Score remaining data with trained model

## Why do they want it?

Topic Modeling (Unsupervised Learning)

- **Clustering:** Group similar responses by calculating similarities in their embeddings
- **Decide major themes:** Sample responses from each topic to title it
- **Assign themes to each response**

1                      2                      3                      4                      5                      6

Scenario	Likes	Dislikes	Impact	Like/Dislike	Topics
User Fee	Nothing	I already pay a lot of taxes. I don't want to pay extra.	I will have less money to pay for living expenses.	Dislike	Taxes, General cost concerns



We've learned this user does not like the user fee because of cost concerns and high taxes.

# Sampling of learnings

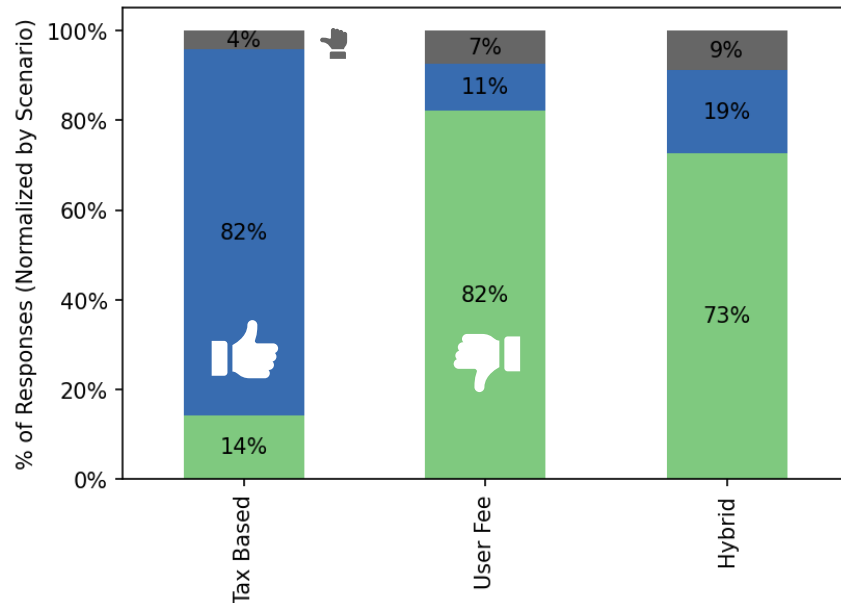
## What do people want?

1

The current (Tax Based) system was most preferred, by a large margin



Breakdown of Likes/Dislikes by Scenario



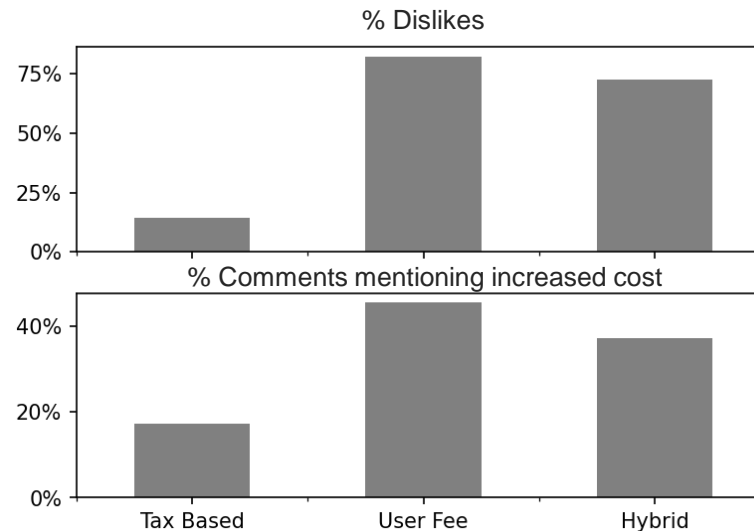
## Why do they want it?

2

It is largely a financial decision (this was a surprise for Peel)



Comparison of Dislike rate to mentions of cost

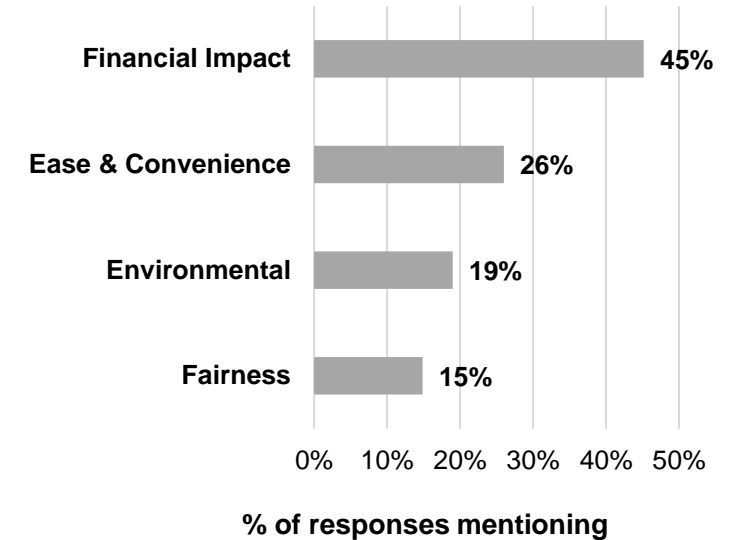


3

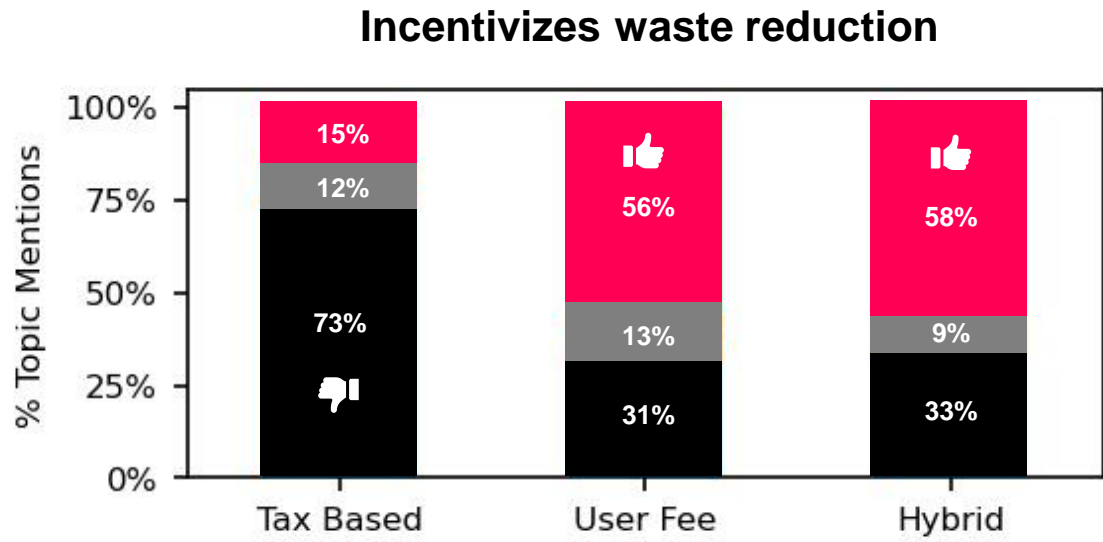
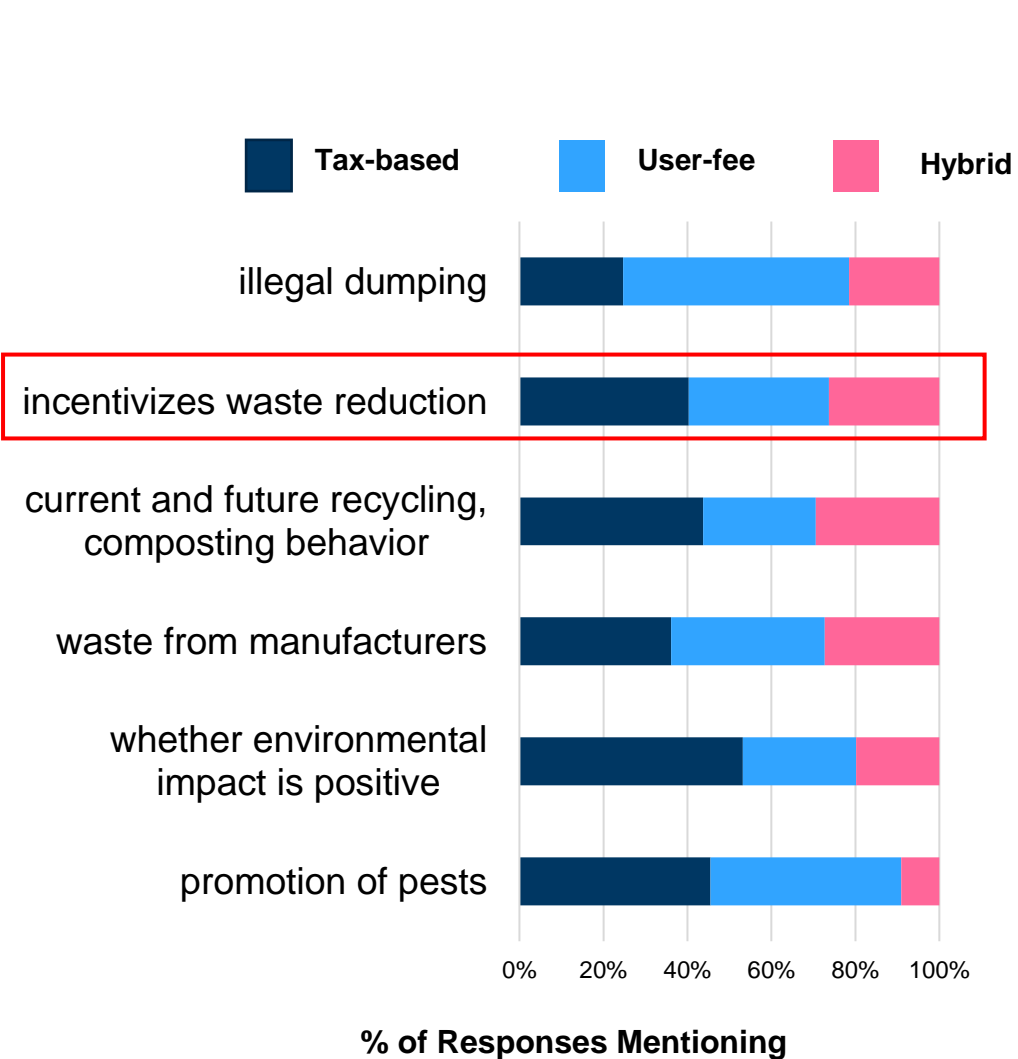
We identified and quantified three other important drivers that people were discussing



Rates of Major Theme mentions



# But what are people REALLY saying?



Many residents recognize that the current tax-based model doesn't incentivize waste reduction.

And they don't like it.





# Imagine a future where you can...

- Access both historical and real-time community insights
- Collect feedback across the whole municipality in one centralized place
- Open the door wide for community feedback, eliminating the need for project-by-project engagement
- Rely on a pool of well-organized and trustworthy decision-making data
- Share this data with their community
- Begin to see community perspectives as an asset, not a risk.



# GHD UNPACK™

*AI-assisted community engagement insights and reporting*

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