

# SUSTAINABILITY IRL CHALLENGE

Individual Submission by Adharsha Sam

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## Problem Statements tackled:

Over the past three weeks, I worked on solving both problem statements provided by Charlotte Mei.

- *Do consumers see any links between nutrition and sustainability?*
- *Which audience personas is @thecharlottemei engaging currently, and what do they want to see next?*

Data Analysis tools used: R and Microsoft Excel

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## 1. DO CONSUMERS SEE ANY LINKS BETWEEN NUTRITION AND SUSTAINABILITY?

### 1.1 Data preparation and analysis procedure:

To access if consumers see any links between nutrition and sustainability, I wanted to start off by finding if they used any sustainability-related and nutrition-related hashtags for the same post. My hypothesis being that if a user used both a sustainability-related and nutrition-related hashtag in the same post, then they believe that there is a link between the two entities. I made use of the *user\_name* and *post\_hashtag* columns in *XDS Sustainability IRL Event Data x IG Posts x P5Y* parquet file given by Synthesis for this analysis. I used *Flick*<sup>1</sup>, an Instagram hashtag tool, to get the best sustainability and nutrition-related Instagram hashtags to check with the entries in the *post\_hashtag* column.

INSTAGRAM HASHTAGS / SUSTAINABILITY

#sustainability hashtags

The best, trending, top and popular Instagram hashtags for sustainability.

Trending

Popular

Best

While we provide trending and popular hashtags for Instagram, they are extremely competitive. To get the best results you should use hashtags that are tailored to your accounts size and engagement rate. [Find out more here.](#)

The top 30 Trending Instagram hashtags for #sustainability

Trending Instagram hashtags related to #sustainability are determined by the average number of daily posts made on the hashtag.

#supportlocal

#sustainablefashion

#ecofriendly

#sustainable

#climatechange

#zerowaste

#recycle

#environment

#sustainableliving

#eco

#reuse

#digs

#tribe

#saveourplanet

#gogreen

#mindfulness

#upcycle

#ecochange

#plasticfree

#ethicalfashion

#recycling

#climateaction

#cofashion

#ecofriendlyproducts

#denim

#fairtrade

#reduceconsumecycle

#bamboo

#ecology

#globalwarming

Copy 30 Trending Hashtags

INSTAGRAM HASHTAGS / NUTRITION

#nutrition hashtags

The best, trending, top and popular Instagram hashtags for nutrition.

Trending

Popular

Best

While we provide trending and popular hashtags for Instagram, they are extremely competitive. To get the best results you should use hashtags that are tailored to your accounts size and engagement rate. [Find out more here.](#)

The top 30 Trending Instagram hashtags for #nutrition

Trending Instagram hashtags related to #nutrition are determined by the average number of daily posts made on the hashtag.

#fitness

#motivation

#gym

#workout

#health

#healthylifestyle

#fit

#training

#vegan

#healthyfood

#bodybuilding

#wellness

#healthy

#gymlife

#personaltrainer

#weightloss

#gymlife

#coach

#exercise

#muscle

#weightlossjourney

#transformation

#fitfam

#diet

#gains

#strong

#healthyliving

#instafit

#deto

#healthyeating

Copy 30 Trending Hashtags

INSTAGRAM HASHTAGS / SUSTAINABILITY

The top 30 Popular Instagram hashtags for #sustainability

Popular Instagram hashtags related to #sustainability are determined by the total number of posts that have been made within a hashtag.

#supportlocal

#ecofriendly

#sustainablefashion

#tribe

#sustainable

#recycle

#environment

#zerowaste

#eco

#gogreen

#ecochange

#sustainableliving

#reuse

#climatechange

#saveourplanet

#ethicalfashion

#upcycle

#bamboo

#plasticfree

#fairtrade

#cofashion

#plastic

#recycling

#recycled

#ecology

#greenliving

#consciousliving

#ethical

#globalwarming

#reduceconsumecycle

Copy 30 Popular Hashtags

INSTAGRAM HASHTAGS / NUTRITION

The top 30 Popular Instagram hashtags for #nutrition

Popular Instagram hashtags related to #nutrition are determined by the total number of posts that have been made within a hashtag.

#fitness

#motivation

#gym

#workout

#fit

#healthy

#health

#training

#bodybuilding

#fitfam

#vegan

#healthyfood

#healthylifestyle

#weightloss

#fitgo

#diet

#gymlife

#muscle

#strong

#coldcan

#exercise

#instafit

#wellness

#cardio

#cleaneating

#weightlossjourney

#gains

#fitnessaddict

#personaltrainer

#coach

Copy 30 Popular Hashtags

Discover the best Instagram #sustainability hashtags for you

The best hashtags for you will be different to the best hashtags for everyone else. Start by using hashtags that your account is able to compete on, that are tailored to your content to better improve your reach.

Find best Instagram hashtags with Flick

Learn how to use hashtags on Instagram

Discover the best Instagram #nutrition hashtags for you

The best hashtags for you will be different to the best hashtags for everyone else. Start by using hashtags that your account is able to compete on, that are tailored to your content to better improve your reach.

Find best Instagram hashtags with Flick

Learn how to use hashtags on Instagram

Next, I created two lists – *sustainability\_jargon* & *nutrition\_jargon* – and assigned the Flick hashtags to these variables. I compared the cleaned *post\_hashtag* column entries (devoid of unnecessary characters such as # and |) with *sustainability\_jargon* and *nutrition\_jargon*. I then created two columns named *nutrition* and *sustainability* and added them to *new\_df* data frame that consists of *user\_name* and cleaned *post\_hashtag* columns from *XDS Sustainability IRL Event Data x IG Posts x*

<sup>1</sup> <https://www.flick.tech/>

2

P5Y parquet file. The *sustainability* column shows Boolean variable TRUE if at least one of the words in *sustainability\_jargon* is found in *post\_hashtag* and FALSE if no matches are detected.

```
new_df$sustainability_jargon<-sustainability_jargon
new_df$sustainability_lookup <- gsub(" ", "|", sustainability_jargon)
new_df[, "sustainability"] <- mapply(grep1, new_df[, "sustainability_lookup"] , new_df[, "ig_posts.post_hashtags"])

table(new_df$sustainability)

head(new_df)

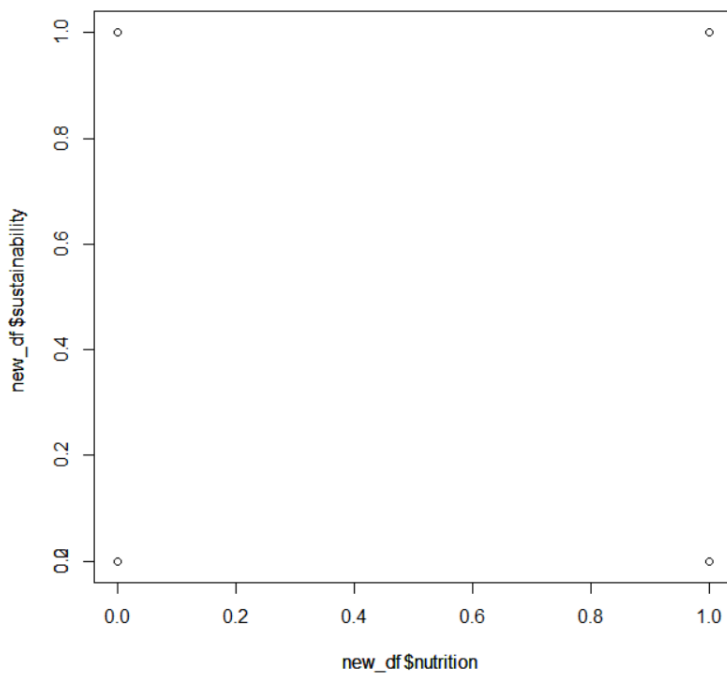
new_df$nutrition_jargon<-nutrition_jargon
new_df$nutrition_lookup <- gsub(" ", "|", nutrition_jargon)
new_df[, "nutrition"] <- mapply(grep1, new_df[, "nutrition_lookup"] , new_df[, "ig_posts.post_hashtags"])

table(new_df$nutrition)

head(new_df)
```

I exported *new\_df* consisting of *user\_name*, *post\_hashtag*, *sustainability*, and *nutrition* columns as an Excel file and converted all the TRUE values into 1s and FALSE values into 0s.

There are 4 possibilities: (0, 0) [post contains no sustainability-related or nutrition-related hashtag], (0, 1) [post contains at least one sustainability-related hashtag but no nutrition-related hashtag], (1, 0) [post contains at least one nutrition-related hashtag but no sustainability-related hashtag], and (1, 1) [post contains at least one nutrition-related hashtag and a sustainability-related hashtag].



## 1.2 Key findings and Insights:

With `new_df$nutrition` and `new_df$sustainability`, I performed the chi-squared test of independence to test if there is a correlation between these two categorical variables in R.

Contingency table:

```
> ##Cross table
> table(new_df$sustainability, new_df$nutrition)

      FALSE  TRUE
FALSE 186145 18993
TRUE   27000  5816

> chisq.test(new_df$nutrition, new_df$sustainability)

Pearson's Chi-squared test with Yates' continuity

data: new_df$nutrition and new_df$sustainability
X-squared = 2169.5, df = 1, p-value < 2.2e-16
```

The calculated chi-squared value of 2169.5 is larger than 3.841 – the critical value of the test found from the chi-squared distribution table for an alpha value of 0.05 and degree of freedom of 1. Hence, we reject our null hypothesis and conclude that, based on the post hashtags, the consumers see a link between sustainability and nutrition which is statistically significant. The variables – sustainability and nutrition – are therefore related to each other but do not necessarily imply a causal relationship.

From the feedback received during the interim consultation session, I delved deeper into the data to pinpoint the differences between (0, 0), (0, 1), (1, 0), and (1, 1) entries where the x-value denotes nutrition, and the y-value denotes sustainability.

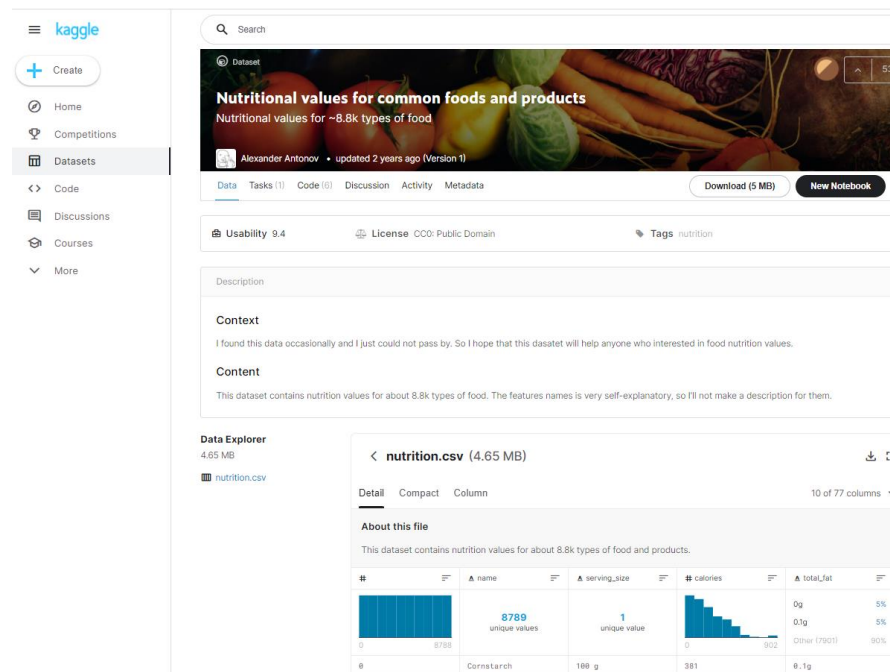
Here are my observations:

Boolean entries	Observations	Verdict
(0, 0)	Many hashtags were about the taste, aesthetics, and the positive mood the food put them in. Some hashtags were about vegetarian foods. There were also a lot of hashtags that are completely unrelated to food.	The users who posted these hashtags are most likely to be concerned about neither the nutritional values of food nor about sustainability in general.
(0, 1)	There were a lot of hashtags related to veganism and the usage of organic and cruelty-free products such as eco-friendly homemade gifts, organic beauty products, natural fabrics, and dyes. Many hashtags were also about being socially responsible by eliminating plastic, composting, and following	Since these entries had sustainability = 1, we see this category filled with socially responsible users who care about the environment. But another interesting observation is that these users also used hashtags related to veganism. So, we can observe that sustainability

	<p>reduce, reuse &amp; recycle principle to save our planet. Some hashtags were also about pollution, climate change and global warming.</p> <p>There were also hashtags promoting conscious and ethical fashion. Apart from these, there were a lot of #foodstagram-related hashtags.</p>	<p>enthusiasts are also intrigued by veganism.</p>
(1, 0)	<p>Numerous hashtags related to nutritional and tasty breakfast ideas such as healthy smoothies, salads and food bowls were found in this category. There were also various low-fat, keto and guilt-free vegan diet-related hashtags. The hashtags were not only about nutrition but also were about health and fitness in general. A lot of hashtags associated with exercises and workouts were found. Moreover, there were also hashtags related to both physical, mental, and emotional wellbeing.</p>	<p>The users in this category seem to generally care about health and wellness – physical, mental &amp; emotional. Moreover, we observe that these people consume nutritious foods including vegan foods. However, we do not see any sustainability related hashtags. Based on post hashtags, it can be inferred that users who place a lot of emphasis on nutrition might not necessarily be ambassadors of sustainability.</p>
(1, 1)	<p>There were multitude of veganism hashtags. Hashtags promoting healthy, meatless home cooking were found. Usage of meat alternatives such as quorn sausages and plant-based protein food items seem to be evident from the hashtags used. Hashtags indicating a care for animals were detected from hashtags like #veganforanimals, #loveanimals, #animalcrueltyfreefood, #crueltyfreeskincare, etc. These users also used hashtags related to physical fitness, mental health, self-love, and self-acceptance. A concern for the Earth was also shown via hashtags associated with the 3R (Reduce, Reuse &amp; Recycle) principle, minimising plastic use, etc. Hashtags supporting slow fashion brands were also found.</p>	<p>These users posted pictures with hashtags that are related to veganism, overall human health, and about environmental care.</p>

Due to the overwhelming number of hashtags related to veganism in the (0, 1) and (1, 1) categories, I thought I would explore if vegan diets are in fact healthier and more sustainable.

To do this, I used an open-source dataset about the nutritional values of common food items on [Kaggle](#)<sup>2</sup>!



### Cleaned data:

```
> head(filtered_data)
  name serving_size calories saturated_fatty_acids sodium sugars protein carbohydrate fiber vitamin_d calcium iron potassium
1  Cornstarch      100 g      381                0.009 g  9.00 mg  0.00 g  0.26 g      91.27 g  0.9 g  0.00 IU  2.00 mg  0.47 mg  3.00 mg
2  Nuts, pecans      100 g      691                6.180 g  0.00 mg  3.97 g  9.17 g      13.86 g  9.6 g  0.00 IU  70.00 mg  2.53 mg  410.00 mg
3  Eggplant, raw      100 g       25                0.034 g  2.00 mg  3.53 g  0.98 g       5.88 g  3.0 g  0.00 IU   9.00 mg  0.23 mg  229.00 mg
4  Teff, uncooked      100 g      367                0.449 g 12.00 mg  1.84 g 13.30 g      73.13 g  8.0 g  0.00 IU 180.00 mg  7.63 mg  427.00 mg
5  Sherbet, orange      100 g      144                1.160 g 46.00 mg 24.32 g  1.10 g      30.40 g  1.3 g  0.00 IU  54.00 mg  0.14 mg  96.00 mg
6 Cauliflower, raw      100 g       25                0.130 g 30.00 mg  1.91 g  1.92 g       4.97 g  2.0 g  0.00 IU  22.00 mg  0.42 mg  299.00 mg
```

According to the Interactive Nutrition Facts Label by the US Food & Drug Administration, 100 calories per serving of an individual packaged item is considered moderate whereas 400 or more calories per serving of an individual packaged food is considered high<sup>3</sup>.

With this information, I filtered food items that have 100 and lesser calories per 100g serving size and the ones that have more than 400 calories per serving in R.

### Here are my observations:

Food items with	Types of foods found in this category
<b><i>less than or equal to 100 calories per serving</i></b>	<ul style="list-style-type: none"> <li>The food items in this category were predominantly fresh fruits and vegetables. I also observed entries of</li> </ul>

<sup>2</sup> <https://www.kaggle.com/trolukovich/nutritional-values-for-common-foods-and-products>

<sup>3</sup> [https://www.accessdata.fda.gov/scripts/interactivenutritionfactslabel/assets/InteractiveNFL\\_WhatsOnTheNFL\\_March2020.pdf](https://www.accessdata.fda.gov/scripts/interactivenutritionfactslabel/assets/InteractiveNFL_WhatsOnTheNFL_March2020.pdf)

	<p>canned fruits and vegetables.</p> <ul style="list-style-type: none"> <li>• There were also a variety of sauces, gravies, soups, and vinegar.</li> <li>• Low fat dairy products such as soy yoghurt, fat-free cream, low-fat milk, imitation milk etc were also found in this list.</li> <li>• Fat-free meats of beef, pork, chicken breast, etc were also prevalent.</li> <li>• Seafood such as fish, mollusks, crustaceans and seaweed were detected.</li> <li>• As for beverages, there were fruit juices, decaf tea, sugar-free energy drinks, low sodium juices and wine.</li> <li>• Canned pasta, healthy cereals and granola were present in this group too. Baby foods rich in fruits and vegetables were found.</li> </ul>
<p><i>more than 400 calories per serving</i></p>	<ul style="list-style-type: none"> <li>• This category consisted of various sugary snacks such as muffins, cakes, pies, cookies with icing, brownies, cinnamon rolls, croissants, pretzels, pastries, bagels, doughnuts, waffles, puddings, etc and savoury snacks such as potato chips, bacon and beef sticks, pork salamis, plantain chips, tortilla chips, taco shells, rice crisps, popcorn, shrimp crackers, etc.</li> <li>• Fattening food items like fats of mutton, beef, chicken, turkey goose, external lamb fat, separable veal fat, whale blubber, butter, margarine, heavy cream, lard, oils, sausages with cheddar cheese, high fat seeds and nuts, etc were also found here.</li> <li>• Food items containing eggs were also included.</li> <li>• Chocolates with very high percentages of cacao were observed.</li> <li>• Fast food especially the ones that are breaded and fried were found.</li> <li>• Foods with high flour content and baby food containing cookie butter were detected in the filtered food product list.</li> <li>• Beverages included sweetened and</li> </ul>

caffeinated drinks.
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***From the table above, we observe that vegan foods are largely found in the category of foods that provide the healthy amount of 100 calories or less per serving.***

To form a strong conclusion that vegan food is indeed more nutritious, I considered other essential nutrients and filtered through the data to look for foods that contain the optimal quantity of these nutrients for healthy functioning of the human body.

According to the US Food & Drug Administration,

- **Nutrients to get less of include saturated fats, sugars, and sodium.**<sup>4</sup>

```
> consume_more_t1 <- subset(n_labels, (n_labels$calories < 100) &
+ (n_labels$saturated_fatty_acids < 3)
+ & (n_labels$sodium < 400) & (n_labels$sugars == 0 | n_labels$sugars < 15))
> head(consume_more_t1$name)
[1] "Cauliflower, raw" "Grapes, raw, muscadine" "Chicory, raw, witloof" "Broccoli, raw, leaves" "Tomatoes, raw, yellow" "Broccoli, raw, stalks"
> tail(consume_more_t1$name)
[1] "Fruit salad, solids and liquids, water pack, canned, (peach and pear and apricot and pineapple and cherry)"
[2] "Beverages, added vitamin C, with low-calorie sweetener, reduced calorie, Vegetable and fruit juice drink"
[3] "Beverages, mineral bottled water, naturally sparkling, GEROLSTEINER BRUNNEN GmbH & Co. KG (Gerolsteiner)"
[4] "Cereals, without salt, prepared (microwaved or boiling water added), plain, instant, corn grits, QUAKER"
[5] "Beverages, prepared with water, frozen concentrate, with juice and pulp, breakfast type, Orange drink"
[6] "Carbonated beverage, without caffeine, with sodium saccharin, other than cola or pepper, low calorie"
```

Again, this filtered data shows foods consisting largely of vegan foods thereby strengthening our hypothesis that vegan foods are more nutritious.

Moreover, an excerpt from *Nature Outlook: Sustainable Nutrition* states that nutritional scientists believe that plant-based diets recommended for good physical and mental health are also often better for the environment than diets that rely heavily on meat and processed foods.<sup>5</sup>

This illustrates how ***vegan diets are more nutritious and sustainable. Therefore, IG users from the (0, 1) and (1, 1) categories are highly likely to be health-conscious advocates of sustainability.***

### 1.3 Limitations:

- **Nutrients to get more of include fibre, vitamin D, calcium, iron, and potassium.**<sup>6</sup>

```
> consume_more_t2 <- subset(n_labels, (n_labels$calories < 100) &
+ (n_labels$fiber > 3)
+ & (n_labels$vitamin_d > 800 & n_labels$vitamin_d < 1000)
+ & (n_labels$calcium == 325) & (n_labels$iron == 11)
+ & (n_labels$potassium <= 200))
> consume_more_t2$name
character(0)
```

When filtering the data according to these conditions, I did not get entries that satisfied all the criteria.

<sup>4</sup> [https://www.accessdata.fda.gov/scripts/interactivenutritionfactslabel/assets/InteractiveNFL\\_WhatsOnTheNFL\\_March2020.pdf](https://www.accessdata.fda.gov/scripts/interactivenutritionfactslabel/assets/InteractiveNFL_WhatsOnTheNFL_March2020.pdf)

<sup>5</sup> <https://www.nature.com/articles/d41586-020-03442-7>

<sup>6</sup> [https://www.accessdata.fda.gov/scripts/interactivenutritionfactslabel/assets/InteractiveNFL\\_WhatsOnTheNFL\\_March2020.pdf](https://www.accessdata.fda.gov/scripts/interactivenutritionfactslabel/assets/InteractiveNFL_WhatsOnTheNFL_March2020.pdf)



Based on the feedback from the interim consultation session, I also attempted to find links between sustainability and nutrition using Instagram usernames. However, when I viewed the *user\_name* column, I speculated that Synthesis might have converted the original usernames into alias names to protect the privacy of IG users. Hence, I did not get to spend time to filter out usernames based on keywords related to sustainability and nutrition due to insufficient information and time crunch.

```
> ig_posts <- read_parquet("ig_posts.parquet")
> ig_posts$user_name
[1] "stirring-elegant-hyrax-of-cubism"
[3] "smooth-wondrous-barracuda-of-promise"
[5] "enormous-booby-of-unreal-youth"
[7] "invaluable-melodic-skylark-of-fertility"
[9] "just-bouncy-gaur-of-beauty"
[11] "impartial-adamant-lobster-of-dew"
[13] "sticky-papaya-stallion-from-asgard"
[15] "robust-happy-locust-of-health"
[17] "caped-devout-flounder-of-effort"
[19] "precious-amiable-kingfisher-of-reputation"
[21] "cunning-khaki-giraffe-of-whirlwind"
[23] "misty-uber-lemur-of-upgrade"
[25] "hypnotic-lime-curassow-of-argument"
[27] "glittering-polar-panther-of-merriment"
[29] "rational-sage-booby-of-reputation"
[31] "humongous-frisky-kakapo-of-merriment"
[33] "tiny-inescapable-kingfisher-of-acumen"
[35] "neon-raspberry-puffin-of-luxury"
[37] "messy-stoic-raven-of-judgment"
[39] "savvy-cyber-goose-of-wizardry"
[41] "hospitable-intelligent-myna-of-drama"
[43] "kickass-sepia-poodle-from-saturn"
[45] "stimulating-wakeful-rhino-of-awe"
[47] "curious-cordial-oyster-of-revolution"
[49] "bright-vanilla-mayfly-of-amplitude"
[51] "pristine-resilient-piculet-of-skill"
[53] "keen-caribou-of-spectacular-dignity"
[55] "heretic-qualified-unicorn-of-excellence"
[57] "notorious-locust-of-total-patience"
[59] "colorful-precious-stallion-of-wind"
[61] "phenomenal-optimal-anteater-of-force"
[63] "swinging-acrid-mouflon-of-freedom"
[65] "careful-condor-of-undeniable-realization"
[67] "imposing-skinny-mouflon-from-arcadia"
[69] "imposing-flying-oxpecker-of-swiftness"
[71] "efficient-emerald-ladybug-of-weather"
[73] "large-functional-raptor-of-wholeness"
[75] "pragmatic-speedy-termite-of-vitality"
[77] "quizzical-ginger-boar-of-modernism"
"thick-curassow-of-stimulating-authority"
"hopping-nebulous-tanuki-of-improvement"
"daffy-fair-koel-of-protection"
"huge-eminant-rabbit-of-priority"
"electric-crystal-hornet-of-satiation"
"portable-strict-hedgehog-from-saturn"
"tremendous-thick-akita-from-lemuria"
"furry-expert-cuckoo-of-efficiency"
"fast-modest-bettong-of-anger"
"massive-muskrat-of-sudden-expression"
"knowing-qualified-chital-from-pluto"
"vigilant-terrestrial-bobcat-from-jupiter"
"exuberant-active-quail-of-perception"
"busy-teal-wapiti-of-education"
"vague-esoteric-labrador-of-elegance"
"righteous-pastoral-weasel-of-drizzle"
"eminent-uakari-of-luxurious-focus"
"talented-translucent-cockle-of-karma"
"silent-neat-auk-of-serenity"
"rigorous-nimble-aardwolf-of-rain"
"refined-fortunate-guan-from-wonderland"
"crystal-ruby-stork-of-rain"
"jolly-tested-buzzard-of-enrichment"
"inventive-wolf-of-remarkable-fortitude"
"beautiful-nifty-crab-from-hyperborea"
"banana-spider-of-abstract-cookies"
"omniscient-zircon-clam-of-tranquility"
"stereotyped-nondescript-hummingbird-of-aptitude"
"uppish-functional-perch-of-chaos"
"noisy-electric-peccary-of-speed"
"humongous-gentle-cuscus-of-conversion"
"grinning-dazzling-waxbill-of-faith"
"amaranth-hornet-of-imaginary-will"
"hairy-quetzal-of-inevitable-holiness"
"cocky-ingenuous-ocelot-of-sufficiency"
"spiffy-terrestrial-agama-of-experiment"
"strict-benevolent-cougar-of-fertility"
"amiable-delightful-puma-of-music"
"fervent-orthodox-marmot-of-destiny"
```

## 2. WHAT IS THE SUSTAINABILITY AUDIENCE CHARLOTTE MEI IS CURRENTLY ENGAGING? AND WHAT DO THEY WANT TO SEE NEXT?

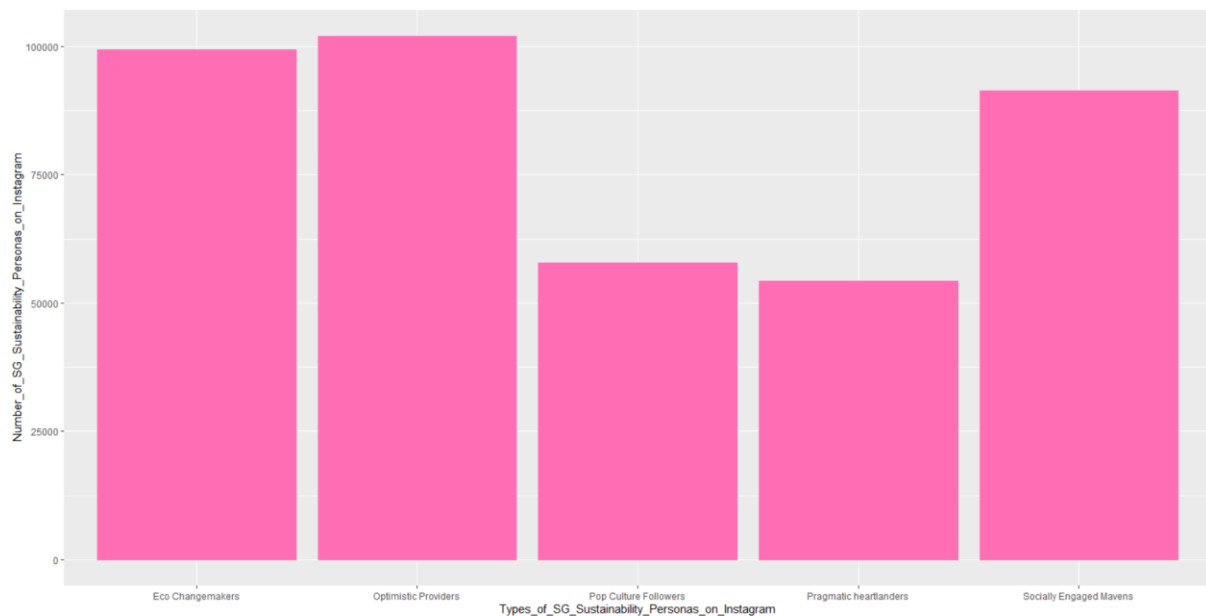
### 2.1 Data preparation and analysis procedure:

To tackle this problem statement, I used Instagram datasets provided by Synthesis since Charlotte Mei is most active on Instagram and the sustainability audience she engages with are predominantly her Instagram followers. I, then, analysed the Twitter dataset to get information related to the Sustainability Persona, Eco Futurists.

### 2.2 Key findings and Insights:

Let us first look at the spread of various Sustainability Personas on Instagram.

#### Sustainability personas on Instagram:

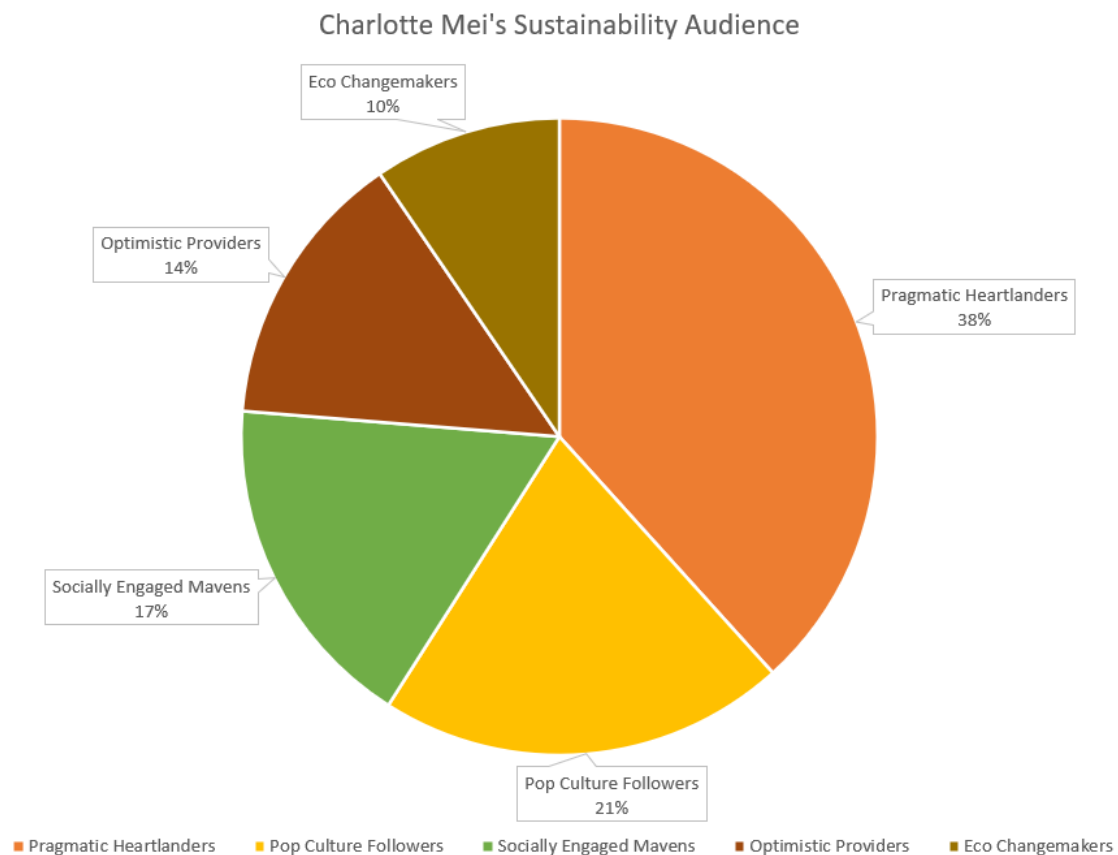


Types of SG Sustainability Personas on Instagram	Exact numbers
Eco Changemakers	99429 (24.6%)
Optimistic Providers	101976 (25.2%)
Pop Culture Followers	57774 (14.3%)
Pragmatic Heartlanders	54308 (13.4%)
Socially Engaged Mavens	91347 (22.6%)
<b>Total</b>	<b>404,834 (100%)</b>

Now, looking at Charlotte Mei's biggest sustainability audience,

```
> top_personas$username[top_personas$username == "thecharlottemei"]
[1] "thecharlottemei"
> top_personas$`Pragmatic heartlanders`[top_personas$username == "thecharlottemei"]
[1] 0.3731884
```

We see that “Pragmatic Heartlanders” make up the largest percentage (37.3%) of her total sustainability audience.



Some actionable insights for Charlotte based on the size of her sustainability audience in descending order!

Sustainability Persona	IG accounts similar to the content on @thecharlottemei that the sustainability audience engage with	Recommendations / What might they want to see next?
<b>Pragmatic Heartlanders</b>	<ul style="list-style-type: none"> <li><b>SG influencers and bloggers</b> (e.g., @naomineo)</li> <li><b>Celebrities</b> (e.g., @natalieportman)</li> </ul>	Pragmatic Heartlanders are consumers of mainstream media which is evident from them following renowned public figures and celebrities. They are also highly likely to engage in matters that affect them personally which explains why

	<ul style="list-style-type: none"> <li>• <b>SG food and fitness</b> (e.g., @sgrestaurants, fitnessfirstsg)</li> <li>• <b>Fashion</b> (e.g., @urbanoutfitters)</li> <li>• <b>TV travel channels</b> (e.g., @cntraveller)</li> </ul>	<p>they are inclined to taking good care of their health and fitness.</p> <p><b><i>Charlotte might want to consider posting more content related to food and fitness to cater to this audience. To urge her biggest group of audience to care more about sustainability, she can consider posting content that shifts focus more on how adopting a sustainable lifestyle can positively impact the individual.</i></b></p>
<b><i>Pop Culture Followers</i></b>	<ul style="list-style-type: none"> <li>• <b>Pop culture icons and celebrities</b> (e.g., @taylorswift, @emmawatson)</li> <li>• <b>Food recipes</b> (e.g., @buzzfeedtasty, @tastemade)</li> <li>• <b>Fashion</b> (e.g., @fashionweek, @gucci)</li> <li>• <b>Footwear brands</b> (e.g., @adidasoriginals)</li> </ul>	<p>Pop Culture Followers are typically younger audience made up largely by females. They are avid followers of well-known movements which explains why they follow many influential pop culture icons and celebrities that serve a purpose.</p> <p><b><i>To cater to this sustainability audience, Charlotte can consider creating a trending movement that supports a social cause of her choice. It was also observed that this group followed multiple food recipe IG accounts so Charlotte can consider posting time-conserving and budget-friendly food recipes.</i></b></p>
<b><i>Socially Engaged Mavens</i></b>	<ul style="list-style-type: none"> <li>• <b>Plants</b> (e.g., @thenursery.sg, @littlebotany, @bloomroomsg)</li> <li>• <b>Food recipes</b> (e.g., @tastemade_japan, @smittenkitchen, @halfbakedharvest)</li> <li>• <b>Health</b></li> </ul>	<p>Socially Engaged Mavens are extremely intrigued by social issues and strive towards analysing these issues to raise awareness. They are strong supporters of artisanal and local brands that are usually also ethical. This explains why they prefer sustainable fashion as they are socially conscious.</p>

	<p>(e.g., @catslavery, @mindbodygreen, @healgroup)</p> <ul style="list-style-type: none"> <li>• <b>Sustainable Fashion</b> (e.g., @thefashionpulpit, @reformation, @fash_rev)</li> <li>• <b>Art</b> (e.g., @naladesigns)</li> </ul>	<p><i>This group of sustainability audience might be fascinated by posts relating to creating a culture that encourages reducing food waste, supporting food donation, and repurposing excess food to combat poverty. They also seem to be the kind of people that would support fair-labour practices in the fashion industry. Charlotte can consider raising awareness on some of the common social issues that are closely related to sustainability. Apart from that, this sustainability audience also places a huge emphasis on maintaining a good body, mind, and soul.</i></p>
<b>Optimistic Providers</b>	<ul style="list-style-type: none"> <li>• <b>SG Food</b> (e.g., @cedelesingapore, @gongchaofficial, @twelvecupcakes)</li> <li>• <b>Teas</b> (e.g., @antea.social, @tilytea, @rbteasg)</li> <li>• <b>Fitness</b> (e.g., @prettyfitsg, @fittactive)</li> <li>• <b>SG Places</b> (e.g., @weekendgowhere, @gardensbythebay, @clarkequaysg)</li> </ul>	<p>Optimistic Providers are largely made of women who have just entered parenthood. They want to provide the best for their family and therefore often purchase budget-friendly yet healthy food.</p> <p><i>This group follow IG accounts such as @kiasufoodies, @sgfoodfinder, @halalfoodhunt, @singaporefoodlisting, etc to get their hands on some of the best food deals in SG. Hence, Charlotte can consider posting healthy yet budget-friendly food recipes for the Optimistic Providers. In addition, these people also focus on keeping their bodies fit.</i></p>
<b>Eco Changemakers</b>	<ul style="list-style-type: none"> <li>• <b>Reducing food waste</b> (e.g., @sgfoodrescue, uglyfood.co)</li> <li>• <b>Vegan recipes</b></li> </ul>	<p>Eco Changemakers are typically of very small population size and engage in intellectual conversations and in-depth research about sustainability.</p>

	<p>(e.g., @veganbowls, @bestofvegan)</p> <ul style="list-style-type: none"> <li>• <b>Reducing plastic</b> (e.g., @zerowastesingapore, @the.eco.warrior, @wastefreeplanet)</li> </ul>	<p>They make sure to support, buy and consume sustainable products.</p> <p><b><i>To capture the attention of this sustainability persona, Charlotte can post vegan recipes since a lot of Eco Changemakers follow IG accounts that post about veganism. She can also post about reducing food waste and plastic as these seem to be the sustainable habits Eco Changemakers place a huge importance on.</i></b></p>
<b>Eco Futurists</b>	NULL	<p>Eco Futurists are a group of passionate and ambitious individuals (usually men) that work in tech/finance jobs.</p> <p><b><i>Owing to insufficient information regarding the engagement of this sustainability persona with IG accounts, there are no actionable insights.</i></b></p>

### 2.3 Limitations:

Based on Twitter data that I analysed, I found that Eco Futurists are very interested in topics concerning modern day technology and the new-normal modes of work. They are also interested in game development and various video games such as FinalFantasy, FANTASIAN, etc. Apart from technology, they are gravitated towards art in the form of photos, cartoons, and comics. Even though Eco Futurists do not constitute Charlotte's sustainability audience on Instagram, it's worthy to note that good photography piques their interest.

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