Market Research Proposal

ST3188 - Statistics Methods for Market Research

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Table of Contents

1. Executive Summary

Founded in 1986, Nestlé Nespresso S.A., commonly known as Nespresso, is a subsidiary of the Nestlé Group, specialises in producing both capsule coffee machines and coffee capsules. Nespresso distributes its product globally and it wants to maintain its position as a leader in the premium coffee market by prioritising product innovation, enhancing customer satisfaction and committing to promote positive perception of the sustainability of its pods.

This study aims to help Nespresso achieve its goal by addressing three main research aims that are identified in the client brief:

1. Understanding customers' preferences for new coffee blends and brewing technologies.
2. Understanding customer pain points to identify areas for improvement in product quality, packaging and customer service.
3. Evaluate the effectiveness of Nespresso's sustainability initiatives and identify opportunities for further improvement.

After the research aims have been identified, we propose some research questions and research objectives to further explore the aims. We would show the methodology of this study including how the research designs are structured, the proposed sampling method, the data that needs to be collected and the data collection process. Subsequently, we will present the relevant statistical techniques and tests implemented on how the data is being analysed and the insights that can be derived from each analysis. Additionally, we discuss the method of focus group discussion and outline the sample questions that will be asked of the participants.

We also include additional necessary information such as the proposed questionnaire and interest form, a Gantt chart of the timeline, estimated budget and further recommendations for this project. A technical appendix is also included for reference.

In conclusion, we would like to provide Nespresso with appropriate recommendations derived from the analysis to achieve its objective of maintaining its leadership position in the premium coffee market. We believe that it is important to understand customers' perspectives and provide products that align with their interests for Nespresso to sustain its competitiveness.

2. Background

Nespresso, founded by Nestlé in 1986, is a coffee company which specialises in producing both capsule coffee machines and coffee capsules. In 2023, with a market value of 11,375 million, Nespresso retained its position as a leading brand in its burgeoning global market despite fierce competition from rivals such as Keurig and Lavazza.[1] Additionally, Nespresso has been voted the "Most Sustainable Company in the Coffee Processing Industry 2021" by the World Finance Magazine for its continuous contribution to environmental protection and sustainability.[2]

3. Problem Definition

The client brief mentioned Nespresso's business objectives in maintaining its leadership position in the premium coffee market. To achieve this, Nespresso aims to prioritise product innovation, particularly in the development of new coffee blends and brewing systems. Nespresso also wants to focus on enhancing the overall customer experience based on feedback. Furthermore, Nespresso is committed to promote positive perceptions of the sustainability of coffee pods as part of its corporate social responsibility efforts. This study will provide insights and recommendations to these concerns for Nespresso in sustaining the market competition.

4. Research Aims (RA)

Through the client brief, this proposal will focus on three main research aims (RA) to answer the concerns that Nespresso have.

- **RA 1**: Understanding customers' preferences for new coffee blends and brewing technologies.
- **RA 2**: Understanding customer pain points to identify areas for improvement in product quality, packaging and customer service.
- **RA 3**: Evaluate the effectiveness of Nespresso's sustainability initiatives and identify opportunities for further improvement.

[1] Quoted from LinkedIn - Nespresso Capsules Market Size In 2023: Share, Latest Trends &Forecast 2023 To 2031

[2] Quoted from Nestlé Nespresso – Nespresso Voted Worlds' Most Sustainable Coffee Company

5. Research Questions (RQ) and Research Objectives (RO)

We propose some research questions (RQ) followed by research objectives (RO) to address each research aims (RA):

1) For RA 1:

RQ 1.1: What are the new coffee blends and brewing technologies that customers want?

RQ 1.2.1: What are some seasonal preferences of new coffee blends?

RQ 1.2.2: What are the general profiles of these groups of coffee drinkers?

As we seek to research on new coffee blends and brewing technologies, the questions should enhance our understanding of current market demands to implement effective market segmentation and penetrate the product accordingly.

RO proposed:

RO 1.1: Explore the new coffee blends and brewing technologies that customers want.

RO 1.2.1: Find out some seasonal preferences of new coffee blends.

RO 1.2.2: Find out the general profiles of these groups of coffee drinkers.

2) For RA 2:

RQ 2.1: How does the overall satisfaction score of customers differ across region and age group?

RQ 2.2.1: What are the factors that can significantly influence customer satisfaction?

RQ 2.2.2: To what extent are the significant factors influencing customer satisfaction?

These questions seek to discover the overall satisfaction score and what factors are considered satisfied for customers. This allows Nespresso to discern the areas for improvement to increase customer experience and determine the emphasis of its branding.

RO proposed:

RO 2.1: Examine how the overall satisfaction score of customers differs across region and age group.

RO 2.2.1: Examine what are the factors that can significantly influence customer satisfaction.

RO 2.2.2: Examine how much are the significant factors influencing customer satisfaction.

3) For RA 3:

RQ 3.1: Can the customers' perception of sustainability initiatives in pods be grouped into major components?

RQ 3.2: Do perception scores for these components differ between customers and non-customers?

RQ 3.3: What marketing strategies can be implemented to create customers' positive perceptions of sustainability initiatives in pods?

By asking these questions, we seek to explore coffee drinkers' point of view on Nespresso sustainability initiatives. This allows Nespresso to understand the perception of coffee drinkers and facilitate various strategies to reduce wastage in resources.

RO proposed:

RO 3.1: Determine if the customers' perception of these sustainability initiatives in pods can be grouped into major components.

RO 3.2: Find out if the perception score for these components is different between customers and non-customers**.**

RO 3.3: Analyse how an advertisement fosters level of perceptions among customers regarding sustainability initiatives in pods.

6. Methodology

6.1 Research Design

This market research's objectives were designed to incorporate exploratory, descriptive and causal research designs based on the research aims. Some research objectives are exploratory as the main purpose is to acquire information about the subject due to insufficient data for making actionable decisions. Descriptive research describes the characteristics of the population or phenomenon accurately as we can assign numbers to represent the degree to which something occurs. Causal research allows us to understand the relationship of cause-and-effect when implementing marketing strategies.

Both focus group studies and online surveys will be conducted to gather qualitative and quantitative inputs respectively.

The primary data would be collected from both focus group studies and online surveys. Some of the primary data collected will be reclassified into categories to simplify the analysis procedure. The secondary data will be provided by the marketing database from Nespresso.

6.2 Relevant Statistical Techniques and Tests

Qualitative:

RO 1.1 – Focus Group

Quantitative:

RO 1.2.1 & RO 1.2.2 – Cluster Analysis

RO 2.1 – 2-way ANOVA

RO 2.2.1 & RO 2.2.2 – Multiple Linear Regression, ANOVA, Global F-test, Partial T-test

RO 3.1 – Factor Analysis

RO 3.2 – Independent T-test

RO 3.3 – Paired T-test

7. Data Collection

7.1 Questionnaire

Online questionnaires provide conveniences as we segment coffee drinkers based on distinct demographic information within a short time. The questionnaire includes a rationale behind the data collected. There are general questions applicable for all coffee drinkers such as age and gender. Based on respondents' customer status (Nespresso/Non-Nespresso Customer), they will go to different sections. Finally, those interested in focus groups discussions will be asked to fill the interest form.

A pilot-testing would be conducted in a small sample of 30 respondents selected from the sampling frame. The process aims to identify and eliminate potential issues that might be overlooked during the questionnaire's creation. The actual questionnaire should provide little-to-no-doubt to the respondents regarding the questions content, wording, sequence, form and layout, question complexity and instructions.

The questionnaire distribution could be executed online via methods such as email blast, QR codes and pop-up on Nespresso's website. Conventional methods like flyers are avoided due to inefficiency and high cost, especially when targeting a large sample size over a short period.

7.1.1 Selecting Sample Size for Questionnaire

According to the client brief, Nespresso aims for a sample size of at least 5,000 Nespresso customers globally and segmented appropriately. Nevertheless, we suggest a size that ensures robust results while optimising costs simultaneously. Assuming 95% confidence interval ($e = 0.05$) with a conservative proportion 0.5, the minimum required sample size is determine using the formula below:

$$n \geq \frac{{Z_{\alpha/2}}^2\big(\pi(1-\pi)\big)}{e^2}$$

$$n \geq \frac{1.96^2\big(0.5(1-0.5)\big)}{0.05^2} \approx 385$$

Based on the formula, we can obtain a robust result by ensuring that at least 385 respondents complete the survey. However, the final decision on the sample size lies with Nespresso. A larger sample size provides a more accurate representation of the entire population but entails higher costs. Although target sample size has been estimated, the number could possibly increase because of the online distribution method.

In 2022, North America and Europe contributed the most global sales of 34.9% and 24.6%, while other regions contributed the remaining.[3] Therefore, we will sample the 385 Nespresso customers accordingly based on these proportions.

According to outboundengine.com, the success rate of selling to an existing customer is 60-70%, while the success rate of selling to a new customer is 5-20%.[4] Hence, we would expect that non-Nespresso customers participating in this study to be around 5-20% of Nespresso's customers. For instance, if Nespresso choose to proceed with 385 exciting customers, we would expect around 20-80 non-Nespresso customers to participate the survey.

7.1.2 Questionnaire Involving Nespresso Customer

The sampling frame for this customer segment is sourced from Nespresso's internal database. We will use two-stage clustering method to select sample respondents from Nespresso's customer population, with clustering based on region. Subsequently, a probabilistic sampling approach will be used to draw samples from each cluster. While this method is straightforward to execute and cost-effective, it may yield imprecise results and require further interpretation of statistics.

[3] Quoted from Statista - Global sales share of the Nestlé Group in 2022, by region
[4] Quoted from Outbound Engine - Customer acquisition & retention marketing stats

7.1.3 Questionnaire Involving Non-Nespresso Customer

Due to the absence of a sampling frame, we will utilise a non-probabilistic sampling method. We propose convenience sampling due to its ease, affordability, and speed compared to other methods. However, it's important to note that non-probabilistic sampling may introduce certain biases which could affect the generalizability of the findings. We will strive to mitigate this by targeting existing customers from Nespresso's direct competitors, such as Keurig, Tassimo and Lavazza. Nevertheless, participation is available to individuals meeting the minimum criteria of able to speak English and aged 18 or above.

7.2 Online Focus Group Discussion

Participants will be obtained from those who completed the interest form during the survey. Each session will include one moderator and ten participants to manage the conversation flow easily. The focus group would last for 90 minutes.[5]

Online focus groups increase convenience for discussion as participation across the world is allowed. Participants are more likely to express their thoughts fully since conflicts, such as dislike of others due to physical appearance are avoided. This enables participants to engage in their best condition.

We propose conducting 10 focus groups (8 Nespresso Customers and 2 non-Nespresso customers). These focus groups will be divided into two batches. If the number of participants exceeds 200, judgemental sampling will be used to filter participants. Otherwise, all respondents will have the opportunity to join. The main goal of this focus group is to explore customers' preferences regarding new coffee blends and brewing systems.

[5] Quoted from Nottingham Spik – How Long Should a Focus Group Last

7.3 Data Collected

Variable	Data Type
Gender	Categorical Nominal
Age	Continuous / Categorical
Region	Categorical Nominal
Customer Status	Categorical Nominal
Seasonal Preferences of Coffee Blends	Categorical Nominal
Preferences of Brewing Technologies	Categorical Nominal
Overall Satisfaction Score	Continuous
Factors Influencing Customer Satisfaction	Continuous (Likert Scale 1 to 7)
Perception of Sustainability Initiatives in Pods	Continuous (Likert Scale 1 to 7)
Level of Perception of Sustainability Initiatives in Pods (Before & After)	Categorical Ordinal (Likert Scale 1 to 7)

Figure 1: List of Data Collected

8. Data Analysis

8.1 Qualitative

8.1.1 Research Objective 1.1

Online focus group discussion will be conducted to get inputs directly from the customers regarding their preferences for new coffee blends and brewing technologies. Ideally, each group would have a moderator and ten participants with a duration of 90 minutes. All participants should be able to speak English and willing to contribute ideas on the discussion topics. The details are mentioned in section 7.2. Additionally, sessions will be recorded and raw transcripts will be provided afterward to ensure accurate information for analysis.

The moderator could ask some open-ended questions such as “What flavours or characteristic are you most curious about when trying new coffee blends?” or “What recent trends in coffee industry have captured your attention?”. Participants are also allowed to ask questions that related to the topic.

8.2 Quantitative

All tests will be conducted with 95% confidence interval (5% significance level) using SSPS.

8.2.1 Research Objective 1.2.1 & Research Objective 1.2.2

To address these objectives, we propose using cluster analysis. Coffee features within the questionnaire will be used as variables. The objective is to cluster coffee drinkers based on coffee feature preferences to derive seasonal preferences of new coffee blends.

Hierarchical clustering will be executed utilising Ward's procedure. This variance method aims to generate cluster that minimise within-cluster variance, corresponding to minimum loss of information when combining clusters. SPSS reports including the agglomeration schedule, cluster membership, icicle plot and dendrogram will indicate the number of clusters (i.e., seasonal preferences of coffee blends).

Assuming there is a consistent indication of five seasonal preferences of coffee blends across SPSS reports, we can interpret the clusters using Ward's Method Table.

Ward Method		**Coffee Feature 1** (Super Sweet vs Super Bitter)	**Coffee Feature 2** (Freezing Cold vs Super Hot)	...	**Coffee Feature 10** (Original vs Herbal)
1	Mean				
	N				
	Std. Deviation				
2	Mean				
	N				
	Std. Deviation				
3	Mean				
	N				
	Std. Deviation				
4	Mean				
	N				
	Std. Deviation				
5	Mean				
	N				
	Std. Deviation				
Total	Mean				
	N				
	Std. Deviation				

Figure 2: Example of Ward's Method Table for RO 1.2.1 & RO 1.2.2

From Ward's Method Table, we can identify coffee features that are highly varied among the five seasonal preferences of coffee blends which enables us to profile the clusters based on those coffee features. For instance, if cluster one demonstrates high scores on multiple coffee features (on a semantic differential scale) relative to other clusters, indicating coffee drinkers' preferences of coffee blends is super sweet ice coffee in all seasons, we could profile cluster one as "Super Sweet Ice Coffee in all seasons". Such profiling can be applied to other clusters to derive the seasonal preferences of new coffee blend which addresses RO 1.2.1.

The cluster membership table allows us to determine the classification of coffee drinkers into each seasonal preferences of coffee blend. With access to demographic and geographic information of surveyed coffee drinkers, we can profile the seasonal preferences of coffee blends in term of variables that were not utilised for clustering. For instance, we may profile the “Super Sweet Ice Coffee in all seasons” cluster to be comprised of coffee drinkers who are below 30 years old and are in Europe. Such profiling can be conducted for other seasonal preferences of coffee blends as well which addresses RO 1.2.2.

8.2.2 Research Objective 2.1

Two-way ANOVA will be useful in addressing this objective. The independent variables are region and age groups while the dependent variable is the overall satisfaction score of customers. We would like to investigate if the overall satisfaction score of customers differs across region and age groups.

Region	Age Groups
Asia, Oceania, and Africa (AOA)	18-24 years old
Europe (EUR)	25-34 years old
Greater China (GC)	35-44 years old
Latin America (LATAM)	45-54 years old
North America (NA)	55 years old and above

Figure 3: Classification of Variables

Assuming the data collected satisfied the necessary assumptions, SPSS conducts the two-way ANOVA:

Test of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Square (η^2)
Corrected Model						
Intercept						
Region					#	*
Age Groups					##	**
Region * Age Groups					###	***
Error						
Total						
Corrected Total						

Figure 4: Two-way ANOVA Table from SPSS

We will focus on the highlighted box to interpret the results. The hypotheses are:

	Main Effect		
	Region	Age Groups	Interaction Variable
H_0	There is no difference in the population mean of the overall satisfaction score of customers among the regions	There is no difference in the population mean of the overall satisfaction score of customers among the age groups	There is no interaction between region and age groups
H_1	Not all means are equal	Not all means are equal	There is interaction between region and age groups

Figure 5: Summary of null and alternative hypotheses for two-way ANOVA

H_0 will be rejected if the p-values obtained in #, ## and ### are less than 0.05. Additionally, η^2would measure the strength of effects (total variation in the overall satisfaction score of customers) of each independent variable that is not attributed by other variables, which are denoted as *, ** and *** respectively.

8.2.3 Research Objective 2.2.1 & Research Objective 2.2.2

Multiple linear regression (MLR) will be used to address RO 2.2.1 and RO 2.2.2. Let the independent variable be machine quality, coffee quality, pod quality, machine packaging, pod packaging, technical assistance, delivery satisfaction and responsiveness to enquiry while the dependent variable is the overall satisfaction score of customers. The MLR equation is:

$$\widehat{Overall\ Satisfaction\ Score}$$
$$= \widehat{\beta_0} + \widehat{\beta_1} Machine\ Quality + \widehat{\beta_2} Coffee\ Quality + \widehat{\beta_3} Pod\ Quality$$
$$+ \widehat{\beta_4} Machine\ Packaging + \widehat{\beta_5} Pod\ Packaging + \widehat{\beta_6} Technical\ Assistance$$
$$+ \widehat{\beta_7} Delivery\ Satisfaction + \widehat{\beta_8} Responsiveness\ to\ Enquiry$$

$\widehat{Overall\ Satisfaction\ Score}$: Estimated value of customer's overall satisfaction score

$\widehat{\beta_0}$: Intercept (Value of $\widehat{Overall\ Satisfaction\ Score}$ when all Xs are equal to zero

$\widehat{\beta_k}$: When X_k increase by I units, $\widehat{Overall\ Satisfaction\ Score}$ increase by this value, with other independent variables remain constant; $k = 1,2,3,4,5,6,7,8$

Model Summary

Model	R	R^2	Adjusted R squared	Std. Error of the Estimate
1		#		

Figure 6: Model Summary for Model Fit from SPSS

The coefficient of determination, R^2 is used to measure the strength of association in the multiple regression, which denoted as # on table 5. The larger the R^2 indicates the model provides fit to the observations better. Additionally, a global F test using ANOVA table is performed to test the statistical significance of the model.

ANOVA

	Sum of Square	df	Mean Square	F	Sig.
Regression					#
Residual					
Total					

Figure 7: ANOVA for Global F-test from SPSS

To test

$H_0: \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_7 = \beta_8 = 0$

H_1: Not all β_s are 0.

If the p-value < 0.05 which denoted as #, H_0 is rejected and we can conclude that model is statistically significant.

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(constant)							
	Machine Quality							
	Coffee Quality							
	Pod Quality							
	Machine Packaging							
	Pod Packaging							
	Technical Assistance							
	Delivery Satisfaction							
	Responsiveness of Enquiry							

Figure 8: Coefficients & T-test Table from SPSS

Individual T-test will be performed to test the significance of the coefficients (β_k). If p-value > 0.05 indicates the t-test of an independent variable is not significant, the variable which has the highest p-value is removed and the regression analysis is rerun. This process is repeated until only significant independent variables are left. Remaining independent variables are the factors that significantly influence customer satisfaction which address RO 2.2.1.

The coefficient of the significant variables found within the unstandardized coefficients – B column indicate the impact of each significant factor on the estimated overall satisfaction score of customers which address RO 2.2.2.

8.2.4 Research Objective 3.1

Factor analysis is useful in addressing RO 3.1. Perception of sustainability initiatives in pods that shown below will be used as variables.

V1: The aluminium from the pod is recycled to produce new product such as pens.
V2: Nespresso provides an efficient recycling system to facilitate customer participation in the recycling program.
V3: The plastic from the pod can be recycled to build coffee machine (Vertuo Next).
V4: Reusable coffee pods allow customers to reuse the pods with their preferred coffee grounds.
V5: Used coffee grounds in the pods will be reused as compost to grow organic vegetables.
V6: The recycled aluminium is used in the production of new capsules.
V7: Pods made of 80% recycled material to reduce carbon footprint from pod production.
V8: Free recycling bag to reduce the usage of plastic bag.
V9: Nespresso encourages the returning of used pods to reduce wastage.

Figure 9: Variables for factor analysis

Major components are determined through SPSS using criteria like eigenvalue, cumulative variance explained and Scree Plot as shown in the "Total Variance Explained" and Scree Plot below.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sum of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative%
1									
2									
3									
4									
5									
6									
7									
8									
9									

Figure 10: Total Variance Explained Table

Using the criterion of eigenvalues > 1 within "Total" of "Initial Eigenvalues", SPSS will retain factors that are associated with a greater amount of variance than a single variable. Moreover, we aim for the retained factors with the cumulative percentage of variation $> 60\%$.

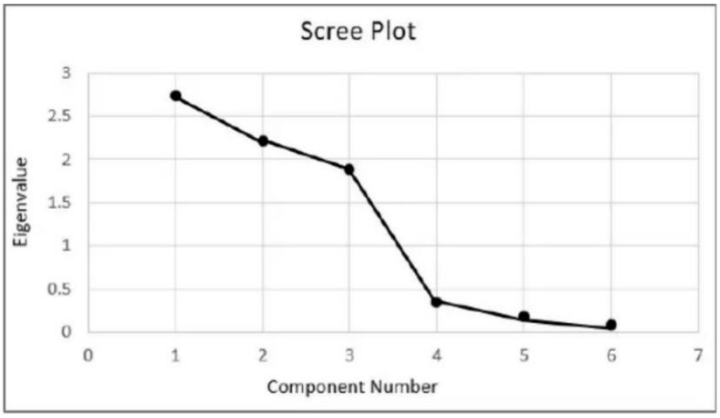


Figure 11: Example of Scree Plot

From the Scree Plot, we can determine the true number of factors which occur before the scree. For example, in Figure 10, we observe that the elbow was formed after the third component. Assuming similar conclusions on the number of factors from the three criteria mentioned above, we could deduce that there are three major components uncovered through factor analysis.

The Rotated Component Matrix table will provide perception of sustainability initiatives in pods that have high correlations with the major components revealed. Below is an example of the output:

Rotated Component Matrix

	Component		
	1	2	3
The aluminium from the pod is recycled to produce new product such as pens.	**0.962**	0.053	0.012
Nespresso provides an efficient recycling system to facilitate customer participation in the recycling program.	**0.879**	0.091	0.032
The plastic from the pod can be recycled to build coffee machine (Vertuo Next).	**0.924**	0.143	0.093
Reusable coffee pods allow customers to reuse the pods with their preferred coffee grounds.	0.034	**0.958**	0.132
Used coffee grounds in the pods will be reused as compost to grow organic vegetables.	0.023	**0.846**	0.021
The recycled aluminium is used in the production of new capsules.	0.135	**0.953**	0.122
Pods made of 80% recycled material to reduce carbon footprint from pod production.	0.162	0.036	**0.979**
Free recycling bag to reduce the usage of plastic bag.	0.036	0.074	**0.884**
Nespresso encourages the returning of used pods to reduce wastage.	0.082	0.037	**0.849**

Figure 12: Example of Expected Output in Rotated Component Matrix Table

For example, based on the provided output, we can deduce that V1, V2 and V3 are highly correlated with component 1. Hence, we could name component 1 as “Recycle”. Similarly, those perceptions which are highly correlated with components 2 and 3 can be named as “Reuse” and “Reduce” respectively. Discovering these major components using factor analysis address RO 3.1.

8.2.5 Research Objective 3.2

This objective will be addressed using Independent T-test. The independent variable is customer status while the dependent variable is perception score for each component (recycle, reuse and reduce), we aim to test whether the perception score for each component differs between Nespresso and non-Nespresso customers. 3 Independent T-tests need to be conducted since there are three components.

Normal assumptions will be ignored due to the large sample sizes. We will proceed with conducting Levene's test followed by Independent T-test. For recycle component, the test will use the following variables:

Symbol	Denotes
${\sigma_1}^2$	Population variance of perception score for recycle component of Nespresso customers
${\sigma_2}^2$	Population variance of perception score for recycle component of non-Nespresso customers
μ_1	Population mean of perception score for recycle component of Nespresso customers
μ_2	Population mean of perception score for recycle component of non-Nespresso customers

Figure 13: Variables denotation for Independent T-test

Independent Samples Test

		Levene's Test for Equality of variances		t-test for Equality of Means						
				t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
		F	Sig.						Lower	Upper
Perception Score for recycle component	Equal variances assumed		#			*				
	Equal variances not assumed					**				

Figure 14: Independent Samples Test from SPSS

Levene's Test

$\mathrm{H}_0: {\sigma_1}^2 = {\sigma_2}^2$

$\mathrm{H}_1: {\sigma_1}^2 \neq {\sigma_2}^2$

If the value at $\# < 0.05$, H_0 will be rejected. This concludes that the population variances for perception score for recycle component for both Nespresso and non-Nespresso customers are significantly different.

Independent T-test

$\mathrm{H}_0: \mu_1 - \mu_2 = 0$

$\mathrm{H}_1: \mu_1 - \mu_2 \neq 0$

If the value on either * or ** (depending on Levene' test) < 0.05, H_0 will be rejected. This concludes that the mean perception score for recycle component between Nespresso and non-Nespresso customers is different.

For both the perception score for reuse and reduce components, same procedures as above will be conducted.

8.2.6 Research Objective 3.3

Paired T-test is used to address RO 3.3 to find out whether an advertisement fosters level of perceptions on sustainability initiatives in pods among customers. One-Group pre-test post-test experimental design will be used to measure the level of perception before and after the advertisement.

Pre-experimental Design

One group pre-test post-test design
O_1 X O_2

- The level of perception of the participants is measured twice
- O_1: Pre-test measurement is taken before watching the advertisement
- O_2: Post-test measurement is taken after watching the advertisement
- X: Exposure to advertisement

Figure 15: Experimental Design

Once the level of perception "before" and "after" the advertisement has been measured, SPSS will compute the mean of the difference which denoted as μ_d, to test:

H_0: $\mu_d = 0$

H_1: $\mu_d \neq 0$

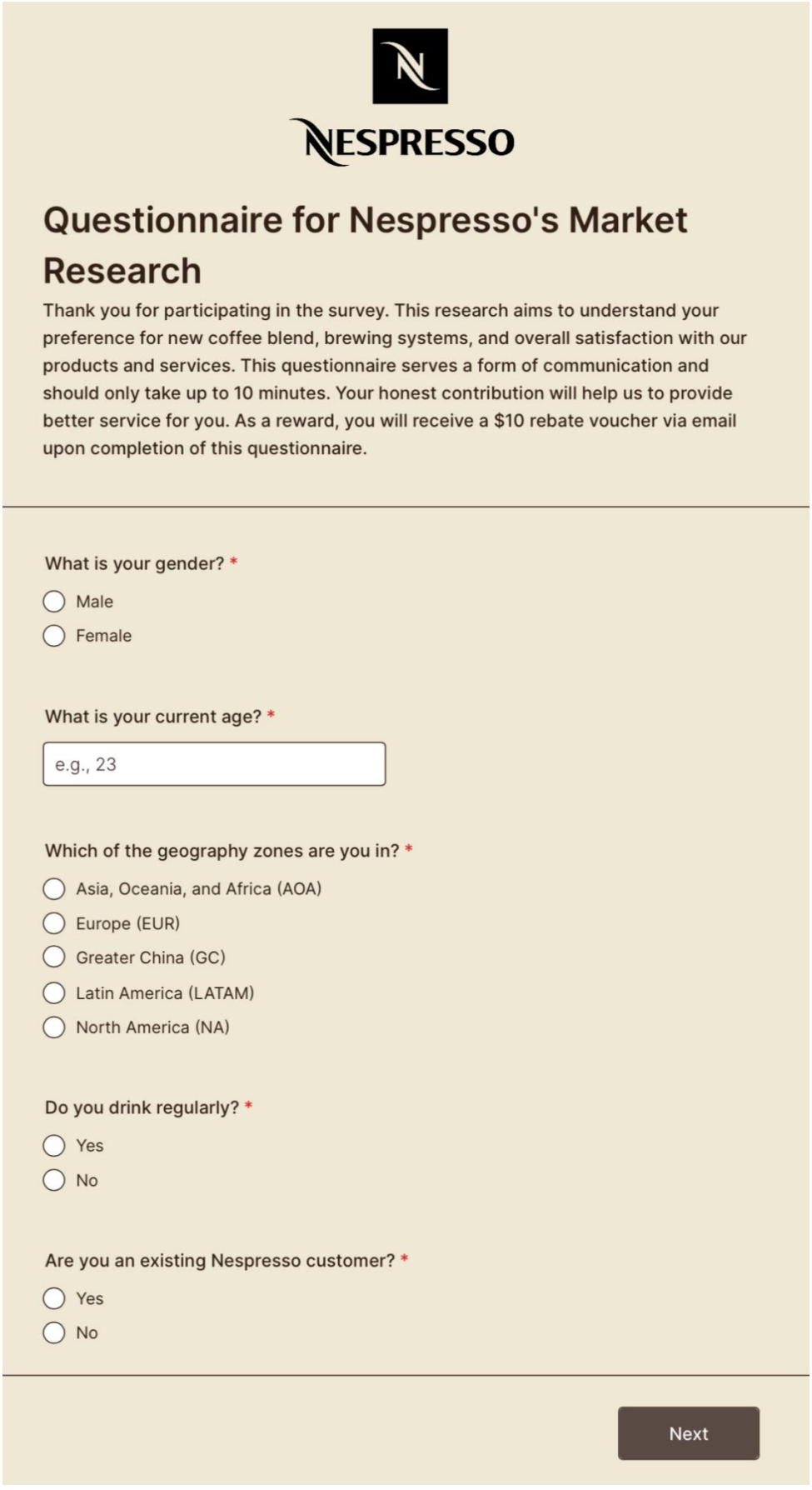
Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Before – After								

Figure 16: Paired Samples Test from SPSS

We assume the normality assumption is satisfied since the sample size is large. If the p-value < 0.05, H_0 will be rejected. The rejection of H_0 indicates there is a significant improvement after the advertisement and given that zero is not within the 95% confidence interval. This allows us to conclude if advertisement fosters level of perceptions on sustainability initiatives in pods among customers.

9. Questionnaire



NESPRESSO

Questionnaire for Nespresso's Market Research

Thank you for participating in the survey. This research aims to understand your preference for new coffee blend, brewing systems, and overall satisfaction with our products and services. This questionnaire serves a form of communication and should only take up to 10 minutes. Your honest contribution will help us to provide better service for you. As a reward, you will receive a $10 rebate voucher via email upon completion of this questionnaire.

What is your gender? *

- ◯ Male
- ◯ Female

What is your current age? *

e.g., 23

Which of the geography zones are you in? *

- ◯ Asia, Oceania, and Africa (AOA)
- ◯ Europe (EUR)
- ◯ Greater China (GC)
- ◯ Latin America (LATAM)
- ◯ North America (NA)

Do you drink regularly? *

- ◯ Yes
- ◯ No

Are you an existing Nespresso customer? *

- ◯ Yes
- ◯ No

Next

Section A (Applicable for ALL)

We would like to develop new seasonal preference of coffee blends and brewing technologies that meets your need. Therefore, we would like you to share with us your preference of coffee blends that is not currently available on seasons.

Spring Preference for Coffee Blends

1 2 3 4 5 6 7

Super sweet — Super bitter

1 2 3 4 5 6 7

Freezing cold — Super hot

1 2 3 4 5 6 7

Light roast — Dark roast

1 2 3 4 5 6 7

Decaffeinated — Addictive caffeinated

1 2 3 4 5 6 7

Rough grind — Fine grind

1 2 3 4 5 6 7

No cream — Full cream

1 2 3 4 5 6 7

Original — Floral

1 2 3 4 5 6 7

Original — Fruitty

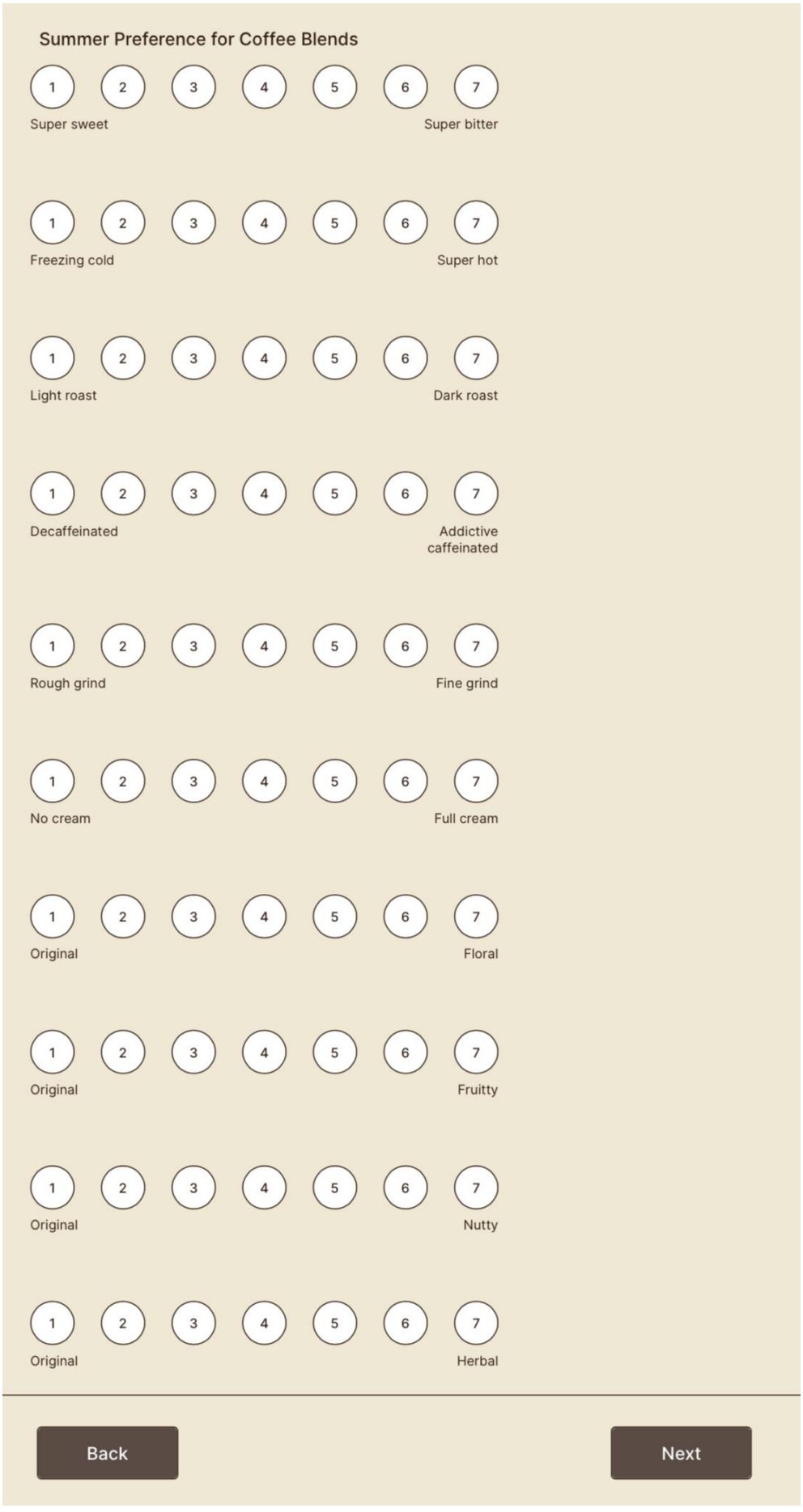
1 2 3 4 5 6 7

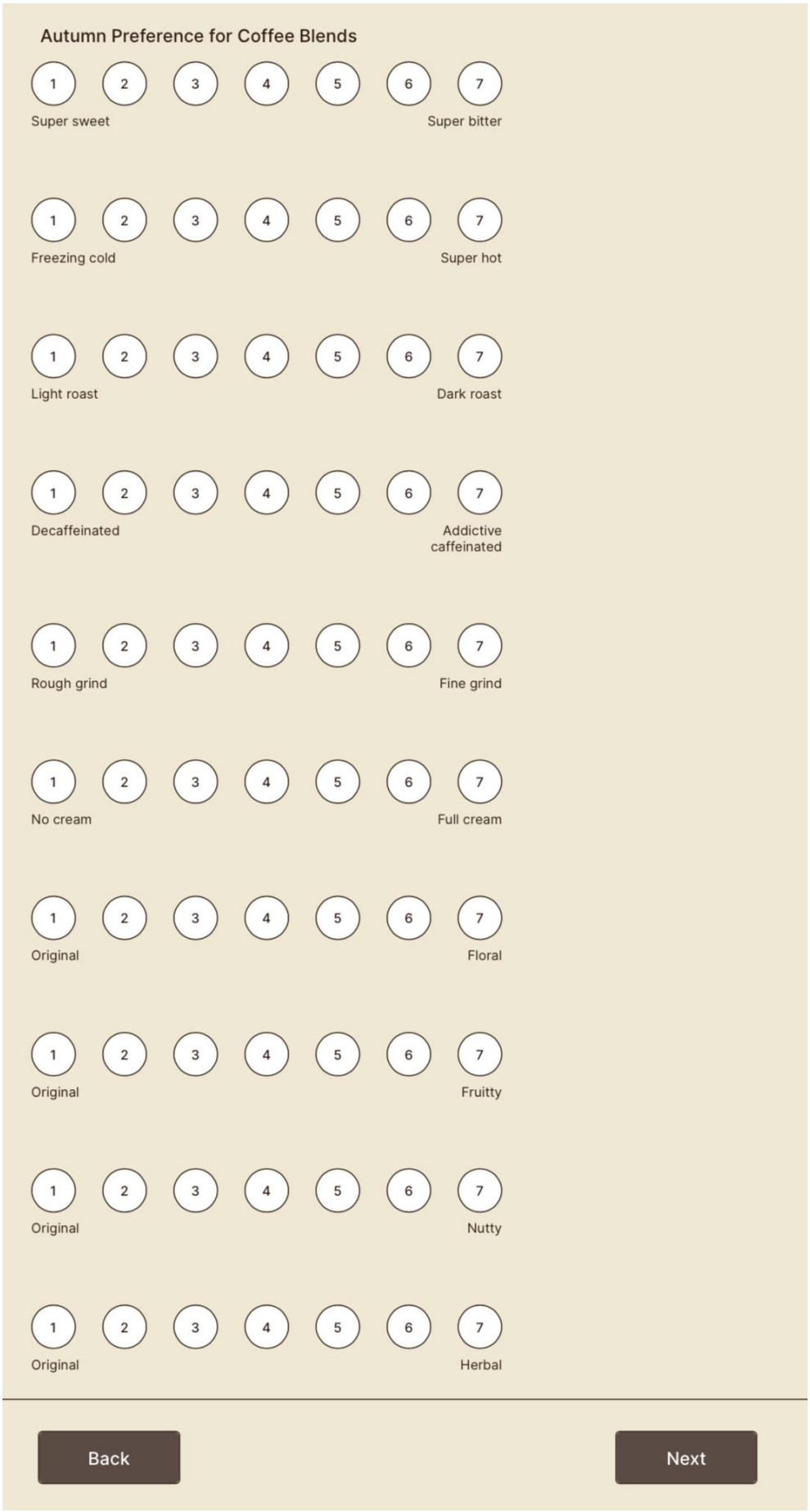
Original — Nutty

1 2 3 4 5 6 7

Original — Herbal

Back Next


Summer Preference for Coffee Blends
1 2 3 4 5 6 7
Super sweet
Super bitter
1 2 3 4 5 6 7
Freezing cold
Super hot
1 2 3 4 5 6 7
Light roast
Dark roast
1 2 3 4 5 6 7
Decaffeinated
Addictive caffeinated
1 2 3 4 5 6 7
Rough grind
Fine grind
1 2 3 4 5 6 7
No cream
Full cream
1 2 3 4 5 6 7
Original
Floral
1 2 3 4 5 6 7
Original
Fruitty
1 2 3 4 5 6 7
Original
Nutty
1 2 3 4 5 6 7
Original
Herbal
Back
Next


Autumn Preference for Coffee Blends
1 2 3 4 5 6 7
Super sweet
Super bitter
1 2 3 4 5 6 7
Freezing cold
Super hot
1 2 3 4 5 6 7
Light roast
Dark roast
1 2 3 4 5 6 7
Decaffeinated
Addictive caffeinated
1 2 3 4 5 6 7
Rough grind
Fine grind
1 2 3 4 5 6 7
No cream
Full cream
1 2 3 4 5 6 7
Original
Floral
1 2 3 4 5 6 7
Original
Fruitty
1 2 3 4 5 6 7
Original
Nutty
1 2 3 4 5 6 7
Original
Herbal
Back
Next


Winter Preference for Coffee Blends
1 2 3 4 5 6 7
Super sweet
Super bitter
1 2 3 4 5 6 7
Freezing cold
Super hot
1 2 3 4 5 6 7
Light roast
Dark roast
1 2 3 4 5 6 7
Decaffeinated
Addictive caffeinated
1 2 3 4 5 6 7
Rough grind
Fine grind
1 2 3 4 5 6 7
No cream
Full cream
1 2 3 4 5 6 7
Original
Floral
1 2 3 4 5 6 7
Original
Fruitty
1 2 3 4 5 6 7
Original
Nutty
1 2 3 4 5 6 7
Original
Hebal
Preferences for Brewing Technologies (allow for multiple choices)
Artificial Intelligence Infusion
Voice-activated brewing
Internet of Things (IoT) connectivity
Sustainable Brewing System
Back
Next

Section B (Applicable for Nespresso customer ONLY)

Our goal is to offer you an excellent experience with Nespresso. We desire to provide you with excellent satisfaction in every aspect of your encounter with us. Therefore, we would like you to share with us your opinions with the following statement.

On a scale of 1 to 100, rate you overall satisfaction with Nespresso.

e.g., 23

(1 to 100)

On a 7-point Likert Scale, with 1 being very strongly disagree and 7 being very strongly agree, how much do you agree with the following statement?

	1	2	3	4	5	6	7
The machine is durable and reliable.	○	○	○	○	○	○	○
The quality of coffee is up to my expectation.	○	○	○	○	○	○	○
The pod function effectively most of the time.	○	○	○	○	○	○	○
The machine is very user-friendly.	○	○	○	○	○	○	○
The coffee packaging is attractive.	○	○	○	○	○	○	○
The technical assistance solves issues successfully.	○	○	○	○	○	○	○
The items are received in good condition.	○	○	○	○	○	○	○
The enquiries can be responded promptly.	○	○	○	○	○	○	○

Back Next

Section C (Applicable for ALL)

We value sustainability greatly. In particular, we place significant emphasis on pod sustainability. We appreciate your truthful view on the following initiatives in improving sustainability.

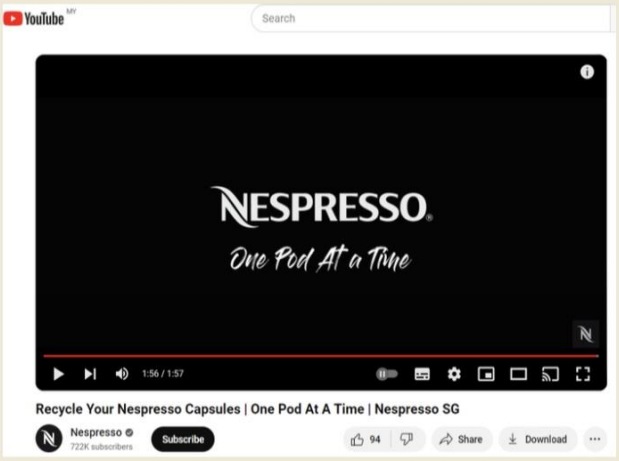
On a 7-point Likert Scale, with 1 being very strongly disagree and 7 being very strongly agree, how much do you agree with the following statement?

	1	2	3	4	5	6	7
The aluminium from the pod is recycled to produce new product such as pens.	○	○	○	○	○	○	○
Nespresso provides an efficient recycling system to facilitate customer participation in the recycling program.	○	○	○	○	○	○	○
The plastic from the pod can be recycled to build coffee machine (Vertuo Next).	○	○	○	○	○	○	○
Reusable coffee pods allow customers to reuse the pods with their preferred coffee grounds.	○	○	○	○	○	○	○
Used coffee grounds in the pods will be reused as compost to grow organic vegetables.	○	○	○	○	○	○	○
The recycled aluminium is used in the production of new capsules.	○	○	○	○	○	○	○
Pods made of 80% recycled material to reduce carbon footprint from pod production.	○	○	○	○	○	○	○
Free recycling bag to reduce the usage of plastic bag.	○	○	○	○	○	○	○
Nespresso encourages the returning of used pods to reduce wastage.	○	○	○	○	○	○	○

On a 7-point Likert Scale, with 1 being the mostly negative and 7 being the mostly positive, what is your current perception of Nespresso sustainability initiatives in pods?

1 2 3 4 5 6 7

Mostly Negative — Mostly Positive



Please watch the advertisement above. Does Nespresso's new advertisement help to fosters your perceptions of its sustainability initiatives in pods? Using the scale below, please rate your perception after watching the advertisement.

1 2 3 4 5 6 7

Mostly Negative — Mostly Positive

Would you be interested to take part in an online focus group discussion on exploration of new coffee blends and brewing technologies? ($20 voucher will be given as an additional incentive) *

- ○ Yes
- ○ No

Back Next

Focus Group Discussion Interest Form

Thank you for expressing your interest in participating in the Focus Group Discussion on exploration of new coffee blends and brewing technologies. By filling up this form, you agree to be involved in the online focus group which is expected to last approximately 90 minutes. The details will be emailed to you within three working days after you complete this form. The $20 voucher incentive will be given to you via email upon finishing the online focus group discussion.

Name of Respondent *

First Name

Last Name

Email *

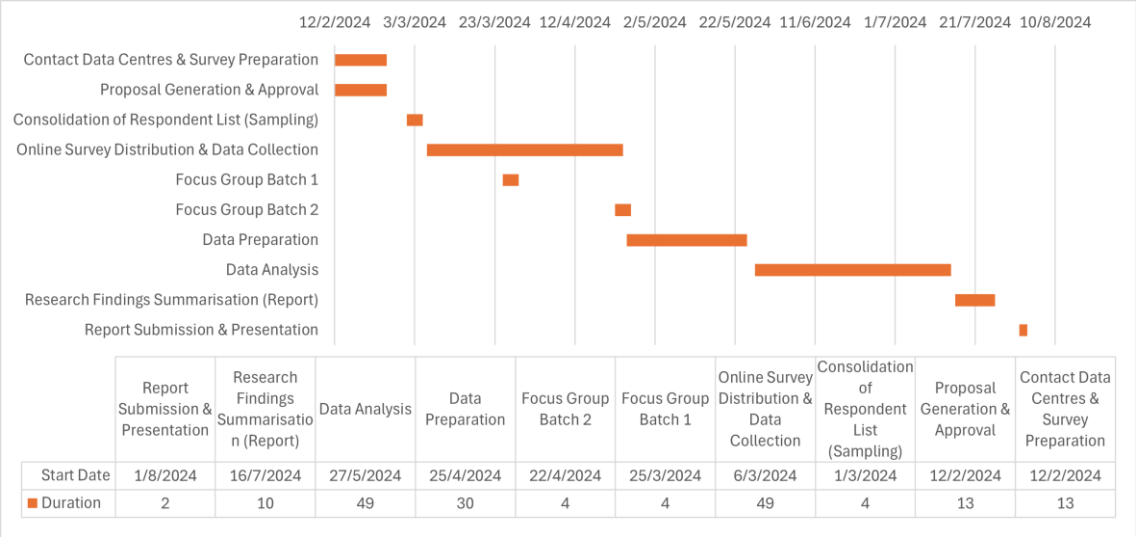
example@example.com

Back

Submit

10. Details – Proposed Timeline Schedule and Budget Allocation

10.1 Timeline:



	Report Submission & Presentation	Research Findings Summarisation (Report)	Data Analysis	Data Preparation	Focus Group Batch 2	Focus Group Batch 1	Online Survey Distribution & Data Collection	Consolidation of Respondent List (Sampling)	Proposal Generation & Approval	Contact Data Centres & Survey Preparation
Start Date	1/8/2024	16/7/2024	27/5/2024	25/4/2024	22/4/2024	25/3/2024	6/3/2024	1/3/2024	12/2/2024	12/2/2024
Duration	2	10	49	30	4	4	49	4	13	13

Figure 17: Gantt Chart of Proposed Timeline in 6 months

10.2 Budget Allocation

Description	Estimated Cost
Data Collection	$350,000
Data Analysis	$150,000
Operations and Administrative Fees	$100,000
Online Survey Incentives (First 10,000 Respondents)	$100,000
Focus Group (Moderator and Incentives)	$150,000
Miscellaneous Expenses	$50,000
Total	**$900,000**

Figure 18: Budget Table

11. Further Recommendations

There are still areas where this study could be further improved. For example, in exploring customers' preferences of new coffee blends and brewing technologies, we can implement experimental studies to test consumer acceptance of potential new products or innovations. Another area to be explored could be the emerging trends in the coffee industry that would inform Nespresso's product development strategies.

Moreover, we could delve into analysing customer feedback from online reviews and social media to understand consumer perceptions of Nespresso's sustainability initiatives. Additionally, conducting focus groups with both Nespresso and non-Nespresso customers to explore their awareness and attitudes towards Nespresso's sustainability efforts could provide valuable insights to refine sustainability strategies.

12. Technical Appendix

Word count:

Excluding executive summary, table of contents, labels, footnotes, tables, table labels, equations, figures and questionnaire, the word count (hand-counted) is 2991.

References:

Global sales share of the Nestlé Group in 2022, by region. (March, 2023). Retrieved 22 February, 2024, from https://www.statista.com/statistics/268894/food-sales-of-the-nestle-group-by-region/

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WHAT TO CONSIDER BEYOND "HOW LONG SHOULD A FOCUS GROUP LAST?". (n.d.). Retrieved 22 February, 2024, from https://www.nottinghamspirk.com/musings/how-long-should-a-focus-group-last

Requirements	Section
Provide a full summary of the research brief, including the aims of the research.	1
Demonstrate an understanding of the market or business context as well as any other publicly available research done in this area.	1, 2, 3, 4, 5, 10
Detail how the fieldwork would be conducted, i.e. face-to-face, telephone, online, focus groups, mixed-mode etc.	6,7
Explain the proposed sampling method as well as other sampling methods considered, including details on any sampling frame to be used.	7
Detail the information that would be gathered and collected by the research.	7
Explain how you would use any customer or operational data supplied to you by the client.	7, 8
Describe what multivariate analysis techniques you propose and how these would help the client's research aims. (You are not required to actually conduct any analysis.)	8
Detail the proposed sample size necessary to construct confidence intervals around the survey estimates.	7
An appropriate questionnaire which would capture suitable data to perform the proposed multivariate analysis. (You are not required to actually run the questionnaire in practice.)	9
Proposed further research, i.e. include ideas for how some business or organisational objectives might be helped by further and different research	11