Start Romagna Report

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Introduction

Our analysis started with the collection of questionnaires from the second week of December 2022 until the end of January 2023. We focused our attention on specific cities around the Start Romagna area of interest, these cities are Rimini, Riccione, Ravenna, Forlì and Cesena. Each member of the group collected the questionnaires in each area in order to have an unbiased analysis. The main issue that we faced was the behaviour of people not so interested in doing the questionnaire on their own by their personal smartphones so in order to avoid this problem we decided to ask each question face by face writing down the answers they reported to us. The Questionnaire took around 5 minutes to be completed and thanks to our expertise in the field we accomplished to collect 300 of them distributed in all Romagna both by bus and Metromare (Rimini and Riccione).

Data Analysis

First, we collected data through a survey from 301 respondents. Secondly, we used bar graphs and pie charts to analyze quantitative data and WordClouds to analyze textual data in open-ended questions. Finally we used chi-square test to ensure the existence or absence of a relationship between some variables.
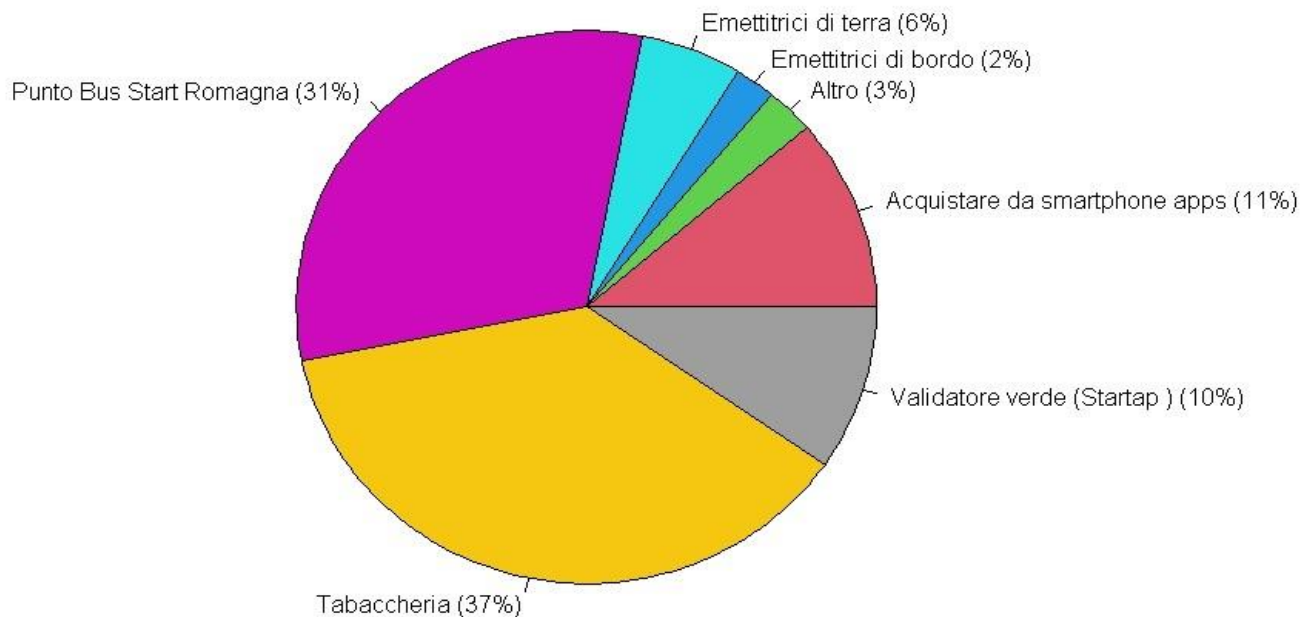
1-Travel habits:

a bar chart to show the most common travel methods reported in the "Lei di solito viaggia con : - Selected Choice" question.

Travel Habits
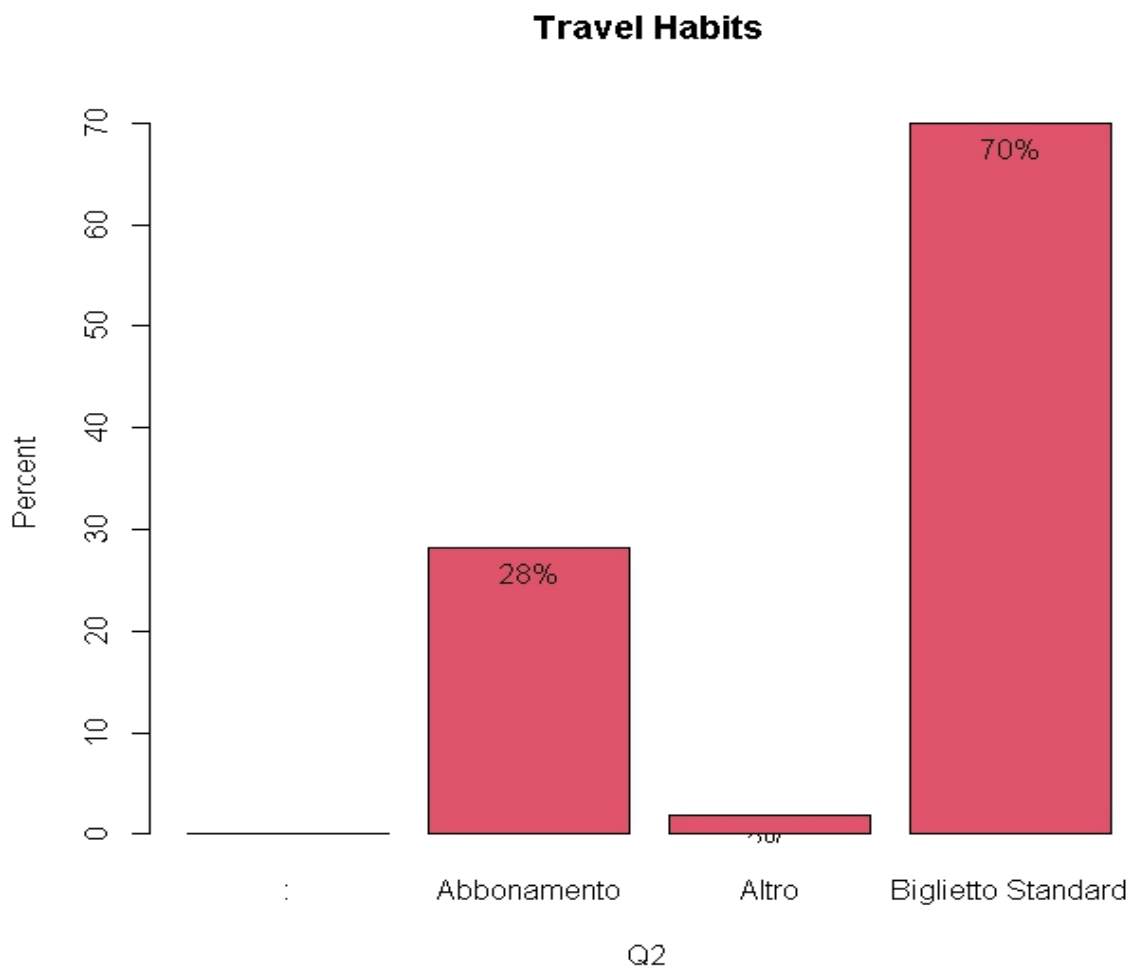
2-Purchase channels:

a pie chart to show the most common channels used to purchase bus tickets, using the responses to the "Quali sono i canali che utilizza normalmente per acquistare il biglietto per il bus? - Selected Choice" question.

Purchase Channels

- Emettitrici di terra (6%)
- Emettitrici di bordo (2%)
- Altro (3%)
- Punto Bus Start Romagna (31%)
- Acquistare da smartphone apps (11%)
- Validatore verde (Startap) (10%)
- Tabaccheria (37%)

3-Desired ticket characteristics:

a word cloud to show the most commonly mentioned characteristics from the open-ended response to the "Per favore, specifichi con 3 parole le caratteristiche che desidererebbe trovare per l'acquisto di un biglietto?

The word cloud suggests that the most commonly desired characteristics of a bus ticket are:

- Speed and efficiency (elocità, velocità)
- Low cost and affordability (prezzo, economico, conveniente, economicità)
- Convenience and ease of use (comodità, semplicità, praticità, facile usare)
- Safety and security (sicurezza)
- Good customer service (gentilezza, buon, professionalità)
- Transparency and choice (trasparenza, scelta, rapi)
- Availability and proximity (vicinanza, disponibilità)

4- Reasons for not buying smartphone tickets:

a word cloud to extract common words or phrases from the open-ended response to the "Per favore, specifichi le ragioni per cui di solito non compra biglietti da applicazioni per smartphone:

The word cloud shows the most common words and phrases used by survey respondents when explaining why they do not usually buy bus tickets through smartphone apps. According to the word cloud, some of the most commonly cited reasons include:

- "trovo" (I find) that other methods of purchasing tickets, such as going to a tobacco shop or buying on board the bus, are more convenient.
- "bordo" (on board) and "uso tabaccheria" (use tobacco shop) are also mentioned as common methods for purchasing tickets, indicating that respondents prefer these alternatives to smartphone apps.
- "solo abbonamento" (only subscription) indicates that some respondents only buy subscriptions rather than individual tickets.
- "preferisco" (I prefer) and "app usare" (app to use) show that some respondents simply have a preference for other methods of purchasing tickets.

- "perché contanti" (because cash) and "comodo abituato" (comfortable used to) suggest that some respondents prefer to pay with cash or are used to paying with cash.
- "prendere piace" (like to take) and "bisogno biglietto" (need ticket) indicate that some respondents simply enjoy buying tickets in person or need to buy them in person.
- "utilizzo sicurezza" (use safety), "fiducioso facile" (confident easy) and "capace sicuro" (capable secure) show that some respondents have concerns about the security and ease of use of smartphone apps.
- "serve prendere" (need to take) and "piace carta" (like card) suggest that some respondents need to buy tickets in person or prefer to pay with a card.
- "abitudine" (habit) indicates that some respondents simply have a habit of buying tickets in a certain way.

In conclusion, the word cloud analysis reveals that there are several reasons why respondents do not usually buy bus tickets through smartphone apps. The main reasons are convenience, preference, and security concerns. Additionally, many respondents prefer to buy their tickets in person or with cash, or they just have a habit of buying tickets in a certain way.

5-Payment methods:

a pie chart to show the most common payment methods used for smartphone ticket purchases, using the responses to the "Se utilizza le applicazioni per smartphone, che metodo di pagamento utilizza più spesso quando deve acquistare il suo biglietto? - Selected Choice" question.

Payment methods
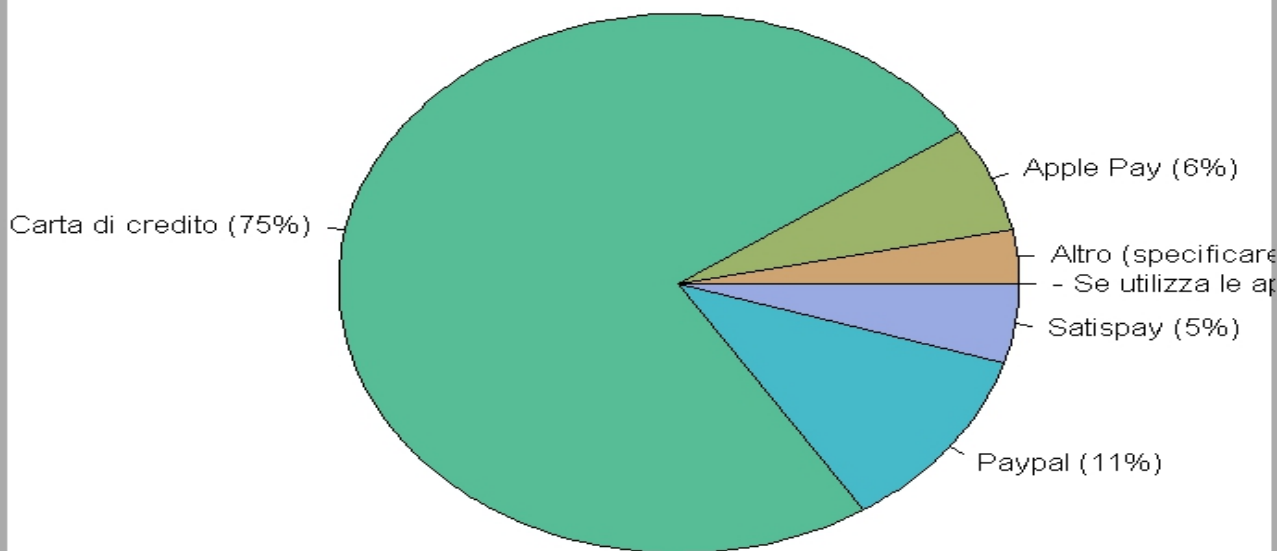
#	Answer	%	Count
1	Carta di credito	74.60%	47
2	Apple Pay	6.35%	4
3	Satispay	4.76%	3
4	Paypal	11.11%	7
5	Altro (specificare)	3.17%	2
	Total	100%	63

Q7_5_TEXT - Altro (specificare)

Altro (specificare) - Testo
Debit card
Postepay

These results indicate that credit card is by far the most popular payment method among respondents when purchasing bus tickets through smartphone apps. It's worth noting that there are relatively low percentages of people who use other payment methods like Apple Pay, Satispay and Paypal, this could be an indication that these payment methods are not yet widely adopted in the population that was surveyed or these payment methods are not yet available in the region where the survey was conducted.

6- Mobile App used:

Q8 - - Se utilizza applicazioni per smartphone quale utilizza più spesso e perchè?

application used

Muver (19%)
DropTicket (10%)
- Se utilizza appl
Roger (16%)
MyCicero (56%)
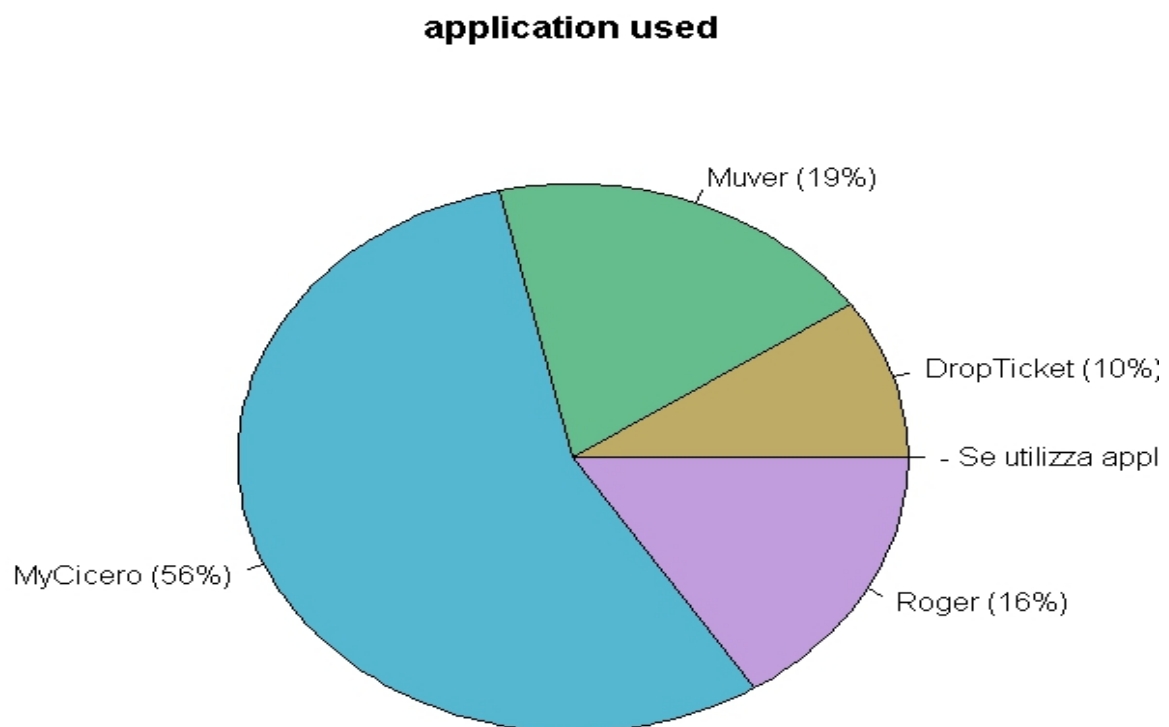
#	Answer	%	Count
5	Muver	19.05%	12
6	MyCicero	55.56%	35
7	Roger	15.87%	10
8	DropTicket	9.52%	6
	Total	100%	63

Q8_5_TEXT

Muver - Testo

è facile da usare e offre una buona esperienza di acquisto, mi piace anche la possibilità di pianificare il mio viaggio.

facile da usare

è facile da usare e offre diverse opzioni di pagamento

Facile da usare, semplice

Q8_6_TEXT

MyCicero - Testo

è facile da usare

offre una buona esperienza di acquisto

Comoda

I only know about this app

offre una buona esperienza di acquisto.

è facile da usare e offre una buona esperienza di acquisto.

È più completa

App semplice e facile da usare

Q8_7_TEXT

Roger - Testo

è facile da usare

è facile da usare e offre una buona esperienza di acquisto, e ho notato che è la più utilizzata dai miei amici.

Q8_8_TEXT

DropTicket - Testo

è facile da usare e offre una buona esperienza di acquisto.

È più comodo per la mia interfaccia utente

The results of Q8 "Se utilizza applicazioni per smartphone quale utilizza più spesso e perchè?" show that the most commonly used bus ticket purchasing app among survey respondents is MyCicero, with 55.56% of respondents indicating that they use it most often. The second most popular app is Muver, with 19.05% of respondents indicating that they use it most often, followed by Roger at 15.87% and DropTicket at 9.52%.

The open-ended responses provided in the text fields (Q8_5_TEXT, Q8_6_TEXT, Q8_7_TEXT, Q8_8_TEXT) provide some insight into why respondents have chosen these specific apps. Many respondents mention that the app is "facile da usare" (easy to use) and offers a "buona esperienza di acquisto" (good purchasing experience). Additionally, respondents also mention that MyCicero app is more "completa" (complete) and it's the most popular among their friends.

In summary, the results suggest that ease of use and a good purchasing experience are the main factors that drive respondents to use a specific bus ticket purchasing app. MyCicero app is the most used one among respondents followed by Muver, Roger and DropTicket. Additionally, it appears that MyCicero is considered as the most complete app among the options available.

7- problems when buying tickets from apps.

Have you had problems when buying tickets from apps
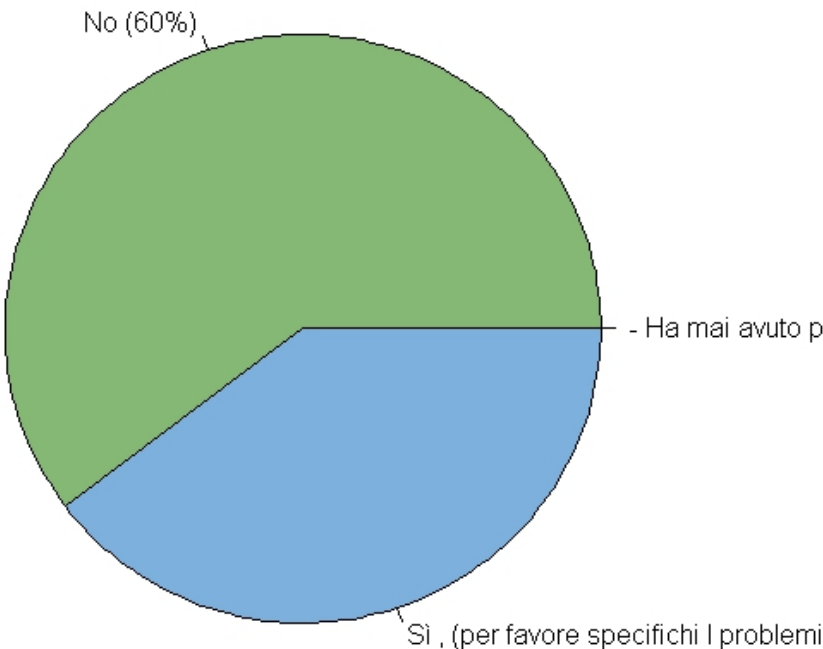
#	Answer	%	Count
1	Sì , (per favore specifichi I problemi riscontrati).	39.68%	25
2	No	60.32%	38
	Total	100%	63

Q9_1_TEXT - Sì , (per favore specifichi I problemi riscontrati).

The word cloud shows the most frequently used words relate to technical issues that may have occurred during the in-app purchase process.

Words such as "connessione", "problemi", "pagamento", "biglietto", "processo", "difficoltà" and "soluzione" suggest that many respondents experienced difficulties related to internet connection, payment, ticket purchase process, or difficulty in finding solutions.

Words such as "sensor", "riconoscimento", "ricevimento", "problema" and "possibile" suggest that some respondents also experienced issues related to the recognition of sensors, receipt of purchased tickets, or some other problems that might happen during the purchase process.

Words such as "offrire", "nfc", "momento", "malfunzionamenti", "maggiore", "inviato", "internet", "funziona", "fase", "dell'app", "chiude" and "causa" indicate that some respondents have encountered problems related to the offer, the use of nfc technology, the moment of purchase, malfunctions, greater problems, sent but not received, internet connection, the functionality of the app, the stage of the app, app crash, or the cause of the problem.

Words such as "carta", "blocca", "assistenza" and "acquisto" suggest that some respondents had issues related to blocked credit cards, need for assistance, or the purchase itself.
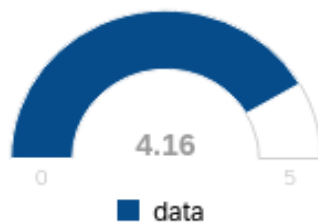
Overall, this word cloud suggests that many respondents have encountered technical problems during the in-app purchase process. These issues appear to include difficulty with internet connections, payment, and the ticket purchase process, as well as problems with sensor recognition, receipt of purchased tickets, and difficulties finding solutions.
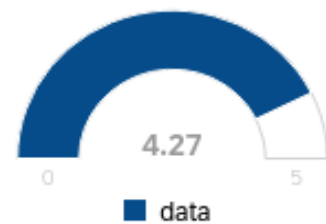
7- Satisfaction with purchase methods

Q10 - -Come valuta la sua esperienza complessiva (la sua soddisfazione) con il metodo di pagamento scelto utilizzando una scala da 1 a 5 stelle.

Satisfaction with purchase methods

sulle Applicazioni per smartphone
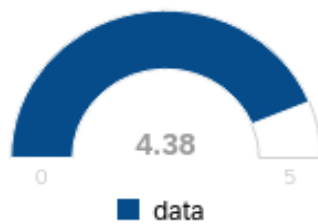
4.16
0   5
■ data

dal Punto Bus Start Romagna

4.27
0   5
■ data

dal Tabaccheria

4.38
0   5
■ data

dagli Emettitrici di terra

3.96
0   5
■ data

dagli Emettitrici di bordo

3.96
0   5
■ data

utilizzando il dispositivo verde

4.55
0   5
■ data
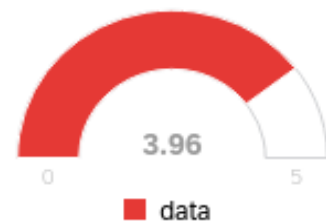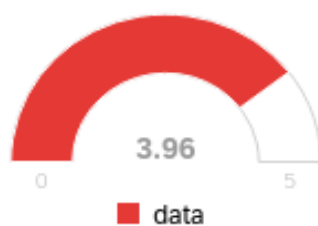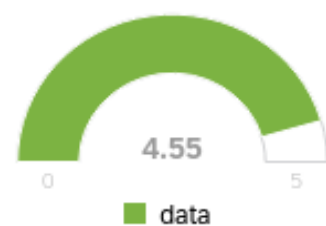
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	sulle Applicazioni per smartphone	3.00	5.00	4.16	0.63	0.39	62
2	dal Punto Bus Start Romagna	1.00	5.00	4.27	0.81	0.66	94
3	dal Tabaccheria	2.00	5.00	4.38	0.82	0.67	129
4	dagli Emettitrici di terra	2.00	5.00	3.96	0.79	0.62	24
5	dagli Emettitrici di bordo	3.00	5.00	3.96	0.81	0.65	23
6	utilizzando il dispositivo verde	2.00	5.00	4.55	0.65	0.42	58

The table contains several statistics for each payment method:

- Minimum: The lowest score given by the respondents
- Maximum: The highest score given by the respondents
- Mean: The average score given by the respondents
- Std Deviation: A measure of the spread of the scores around the mean
- Variance: A measure of the spread of the scores around the mean
- Count: The number of respondents who gave a score for this payment method

From the table, it appears that overall, the respondents were generally satisfied with their experience using the different payment methods. The mean score for each method is above 3.5 out of 5, which indicates a positive experience.

It's worth noting that the most popular payment method is "dal Tabaccheria" with 129 respondents, and the least popular is "dagli Emettitrici di terra" with 24 respondents.

It's also worth noting that the highest mean score is for "utilizzando il dispositivo verde" with 4.55, and the lowest mean score is for "dagli Emettitrici di terra" with 3.96.

The standard deviation for each method is around 0.8, which indicates that the scores are relatively spread out, and not tightly clustered around the mean.

Overall, this table suggests that respondents were generally satisfied with their experience using the different payment methods, with the highest satisfaction score being for "utilizzando il dispositivo verde" and the lowest satisfaction score being for "dagli Emettitrici di terra".

8- Causes for not using Startap device for buying tickets.

Q13 - - Per favore, specifichi le ragioni per cui di solito non compra biglietti dal dispositivo Startap presente a bordo:

Causes for not using Startap device for buying tickets

È più facile per me recarmi in tabaccheria (24%)

Altro (specificare) (14%)

Non capisco come funziona il dispositivo (13%)

- Per favore, specifichi le ragioni per cui di solito non compr

Non ho una carta di credito (8%)

Preferisco utilizzare le applicazioni per smartphone (15%)

Preferisco pagare con I contanti (26%)
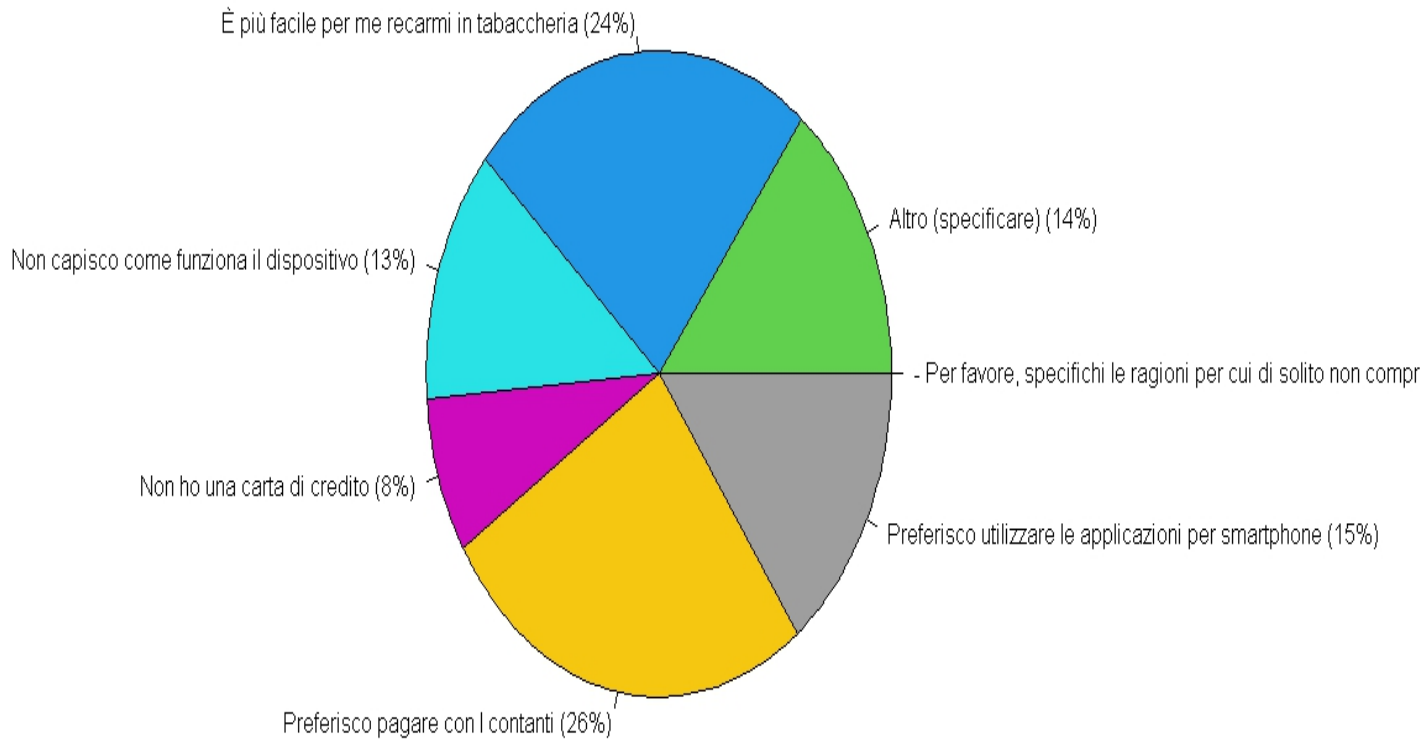
#	Answer	%	Count
1	Non ho una carta di credito	7.85%	19
2	Non capisco come funziona il dispositivo	12.81%	31
3	Preferisco pagare con I contanti	26.03%	63
4	È più facile per me recarmi in tabaccheria	23.97%	58
5	Altro (specificare)	14.46%	35
6	Preferisco utilizzare le applicazioni per smartphone	14.88%	36
	Total	100%	242

The results show that the most common reason for not purchasing tickets from the on-board device is the preference for cash payments (26.03%), followed by the preference for

going to a tobacco shop (23.97%). The lack of understanding of how the device works (12.81%) and the lack of credit card (7.85%) also represent a significant percentage of the respondents. Additionally, 14.46% of the respondents had other reasons, and 14.88% preferred to use smartphone apps.

These results suggest that the on-board device is not being used as much as other methods of purchasing tickets, such as cash payments or visiting a tobacco shop. Additionally, the results suggest that the device may be difficult to understand or use, and that a lack of credit card is also a barrier to its use.

Q13_5_TEXT - Altro (specificare)

Words such as "l'abbonamento", "uso", "abbonamento", "preferisco" and "dispositivo" suggest that many respondents prefer to use other options such as having a subscription or using other devices, instead of using the on-board device.

9- Causes for not using Startap device for buying tickets.

Q15 - - Crede che le persone anziane utilizzerebbero di più le applicazioni online e il dispositivo Startap se fossero a conoscenza dei benefici che portano?

47.99% ——— 52.01%

■ Si   ■ No, (che cosa potrebbe spingere le persone anziane ad utilizzare questi servizi?)

#	Answer	%	Count
1	Sì	52.01%	155
2	No, (che cosa potrebbe spingere le persone anziane ad utilizzare questi servizi?)	47.99%	143
	Total	100%	298

The wordcloud shows the most frequently used words relate to the difficulties and challenges that older people may face in using these services.

Words such as "anziani", "usano", "uso", "apps" and "usarebbero" suggest that many respondents believe that older people would use these services more if they were aware of the benefits they bring.

Words such as "difficile" and "usare" suggest that some respondents think that older people may find it difficult to use these services.

Overall, this word cloud suggests that some respondents believe that older people would use these services more if they were aware of the benefits they bring, however there are some respondents think that older people may find it difficult to use these services.

10-Frequency of using Start Romagna Services

Frequency of using Start Romagna Services
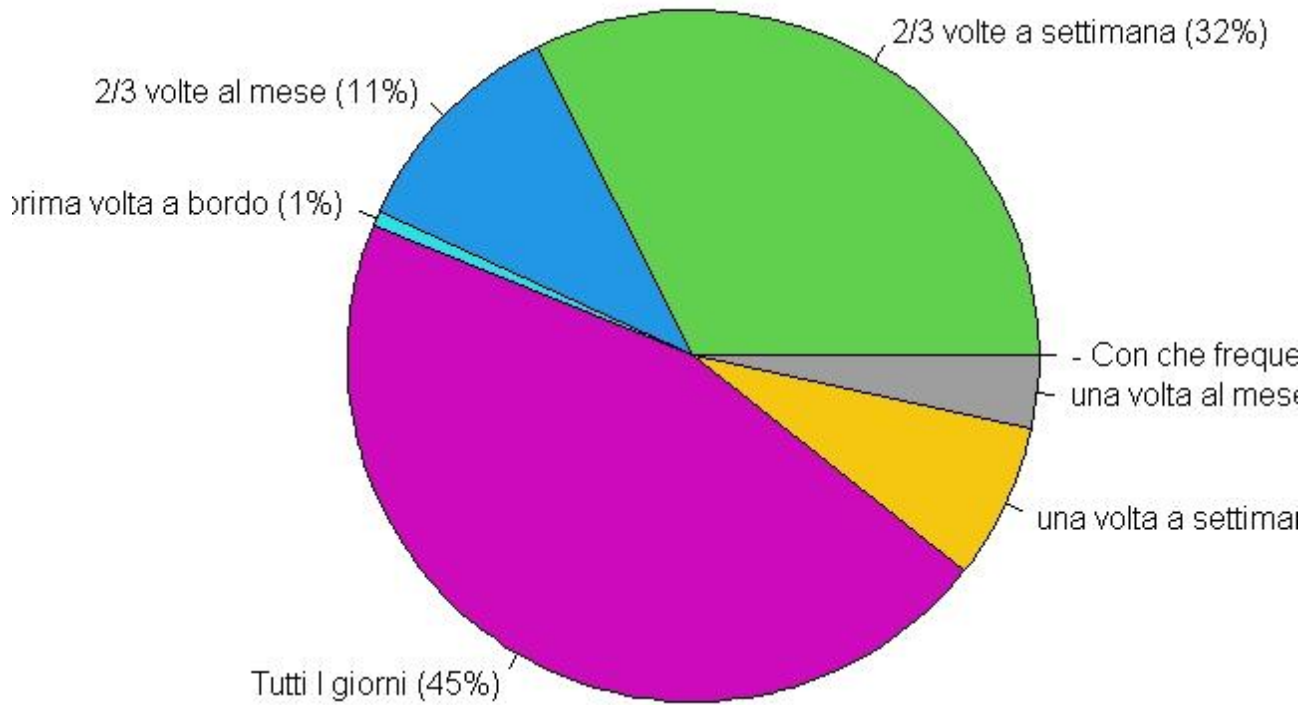
#	Answer	%	Count
1	Tutti I giorni	45.48%	136
2	2/3 volte a settimana	32.44%	97
3	2/3 volte al mese	10.70%	32
4	è la mia prima volta a bordo	0.67%	2
5	una volta a settimana	7.36%	22
6	una volta al mese	3.34%	10
	Total	100%	299

11-Gender:

Gender

Femmina (40%)

- Genere: (0%)
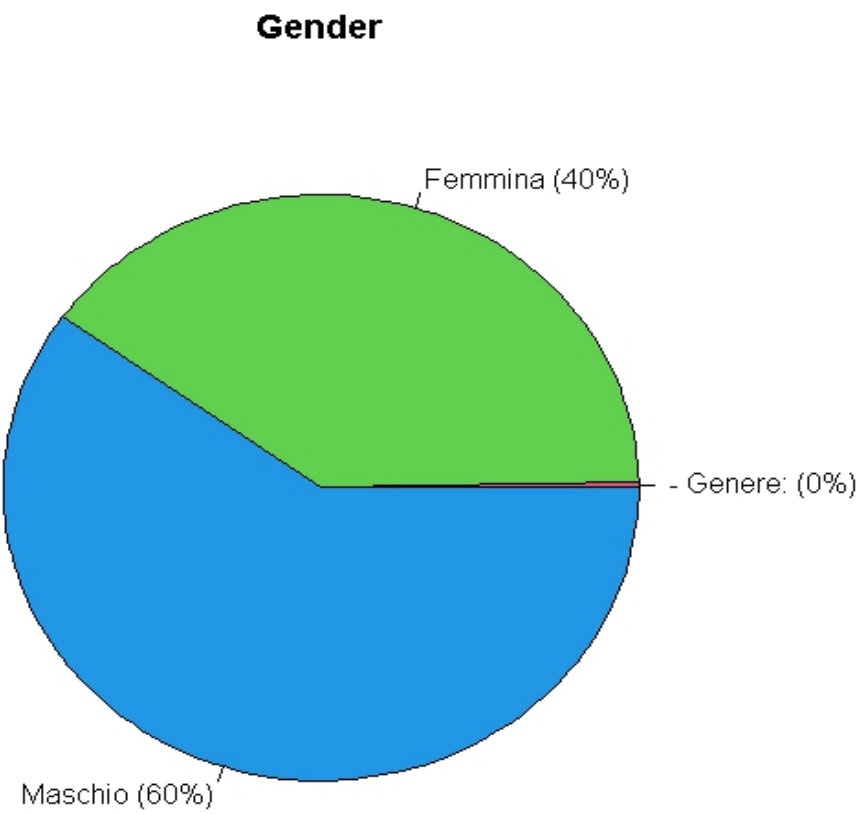
Maschio (60%)

#	Answer	%	Count
1	Maschio	60.13%	181
2	Femmina	39.87%	120
	Total	100%	301

12- Nationality

Nationality
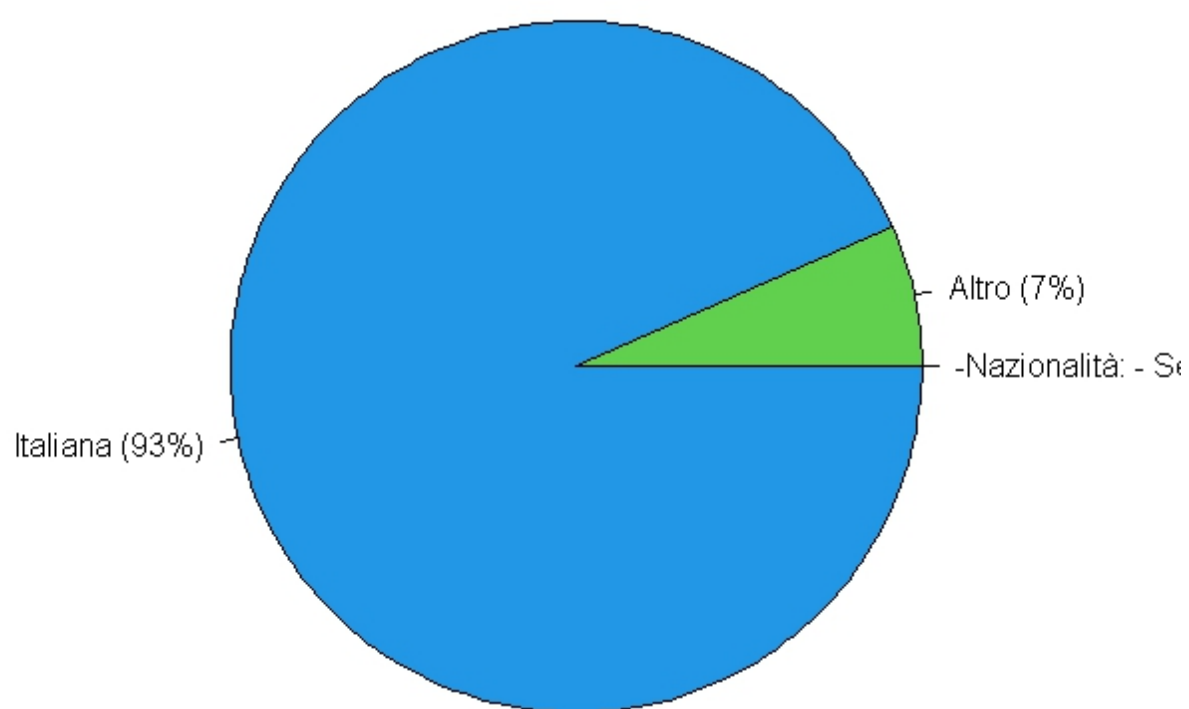
#	Answer	%	Count
1	Italiana	93.33%	280
2	Altro	6.67%	20
	Total	100%	300

13-Città di provenienza:
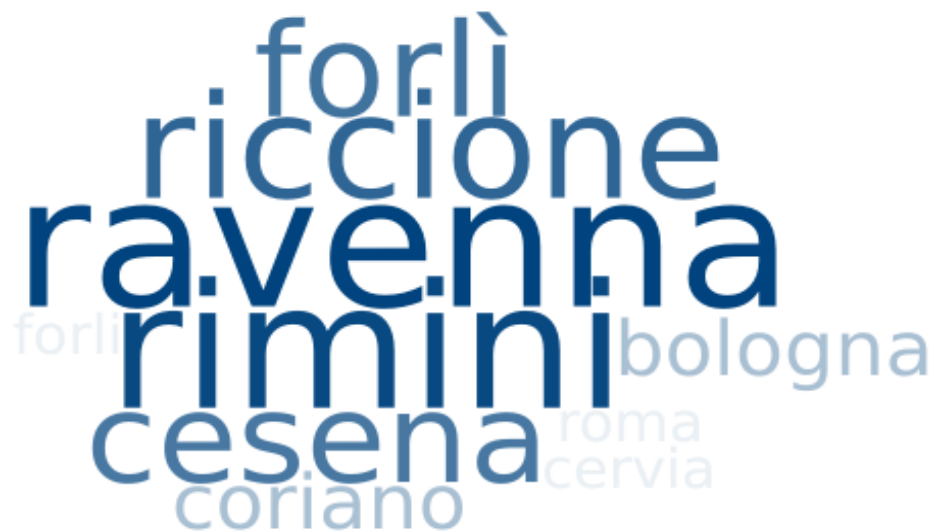
Based on the word cloud analysis of the responses to the question "Città di provenienza" (city of origin), it appears that the majority of respondents are from the cities of Ravenna, Rimini, Riccione, Forlì, Cesena, and Bologna. These cities were identified as the most frequently mentioned in the survey responses, with Ravenna being the most commonly cited city of origin.

14-Occupation:

Occupation
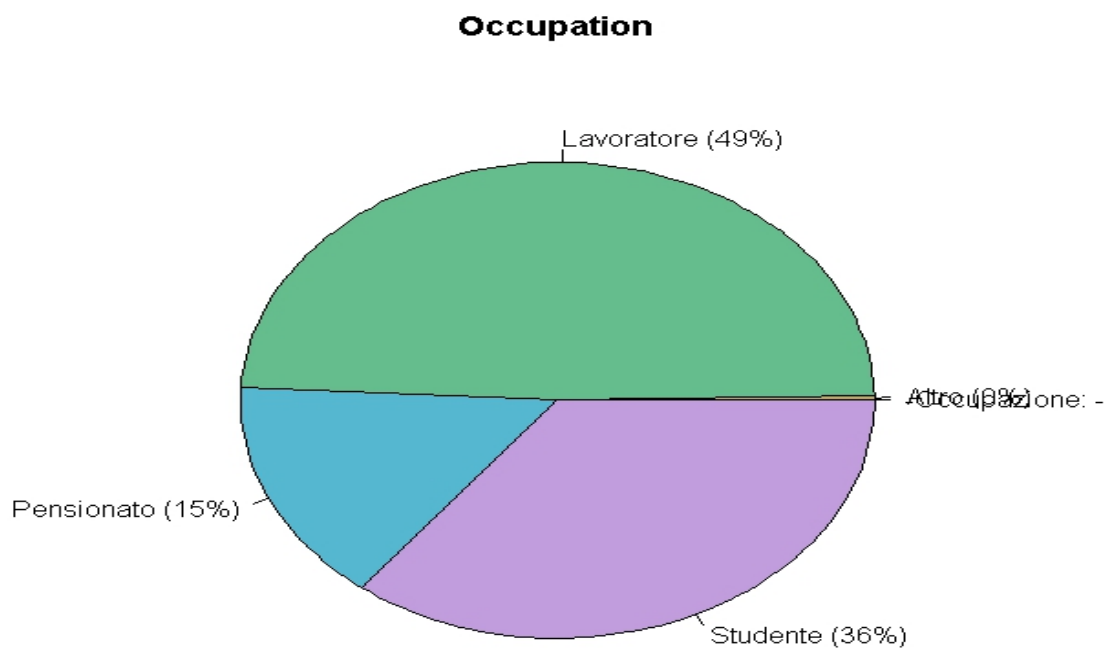
#	Answer	%	Count
1	Studente	35.55%	107
2	Lavoratore	48.84%	147
3	Pensionato	15.28%	46
4	Altro	0.33%	1
	Total	100%	301

15-Age:

Q22 - - Età:

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	- Età:	16.00	82.00	37.51	17.48	305.45	299

From the table, it appears that the youngest respondent is 16 and the oldest is 82, with an average age of 37.51 years old. The standard deviation is 17.48, which indicates that the ages are relatively spread out, and not tightly clustered around the mean.

It's worth noting that the age range is 66 years, from 16 to 82, which is a wide range, it may indicate that the sample is representative of different age groups.

16-Luogo (città di intervista):

City of interview
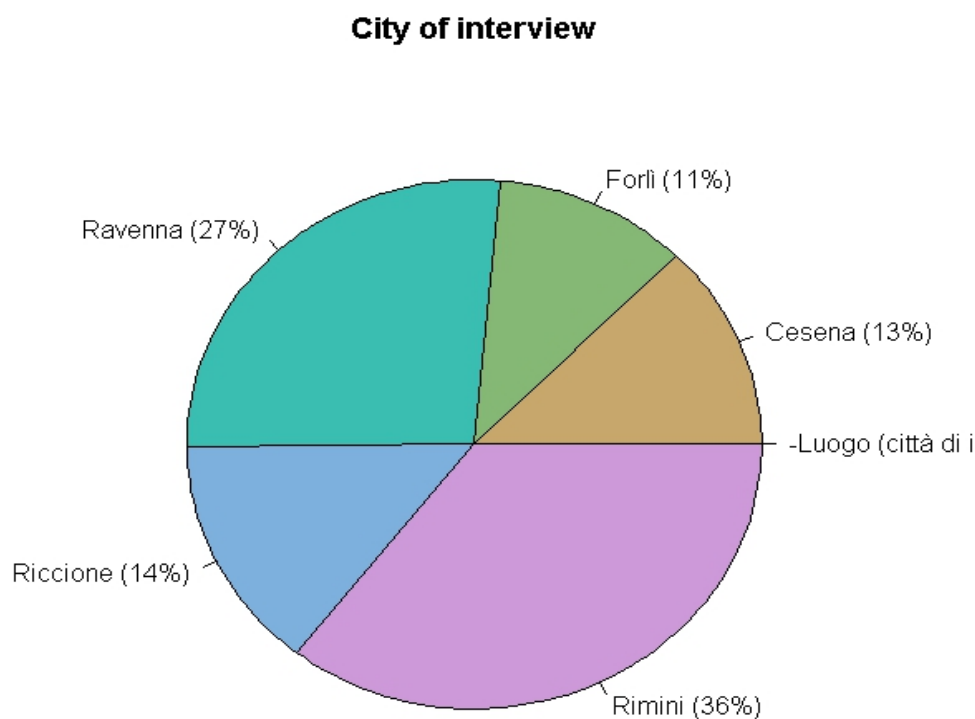
#	Answer	%	Count
1	Rimini	35.55%	107
2	Forlì	10.96%	33
3	Cesena	12.62%	38
4	Ravenna	26.58%	80
5	Riccione	14.29%	43
	Total	100%	301

17-Mezzo di trasporto

Mean of transport

Bus (82%)

-Mezzo di traspc
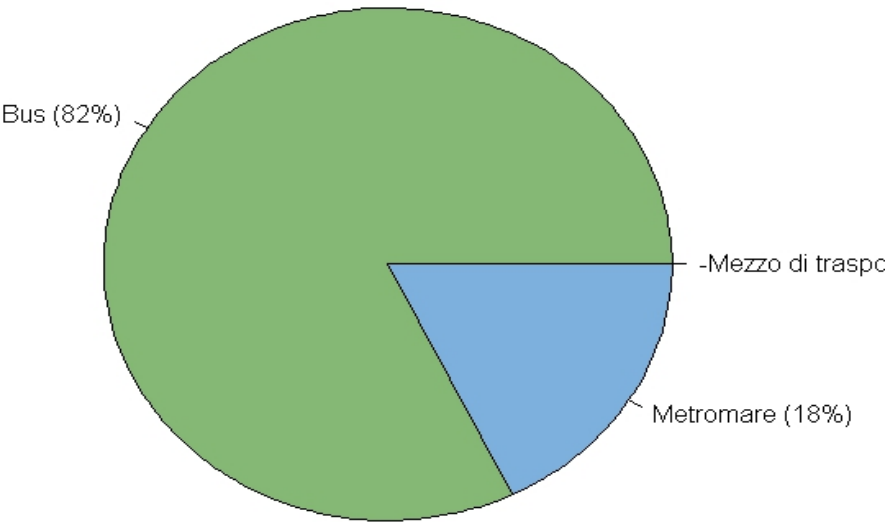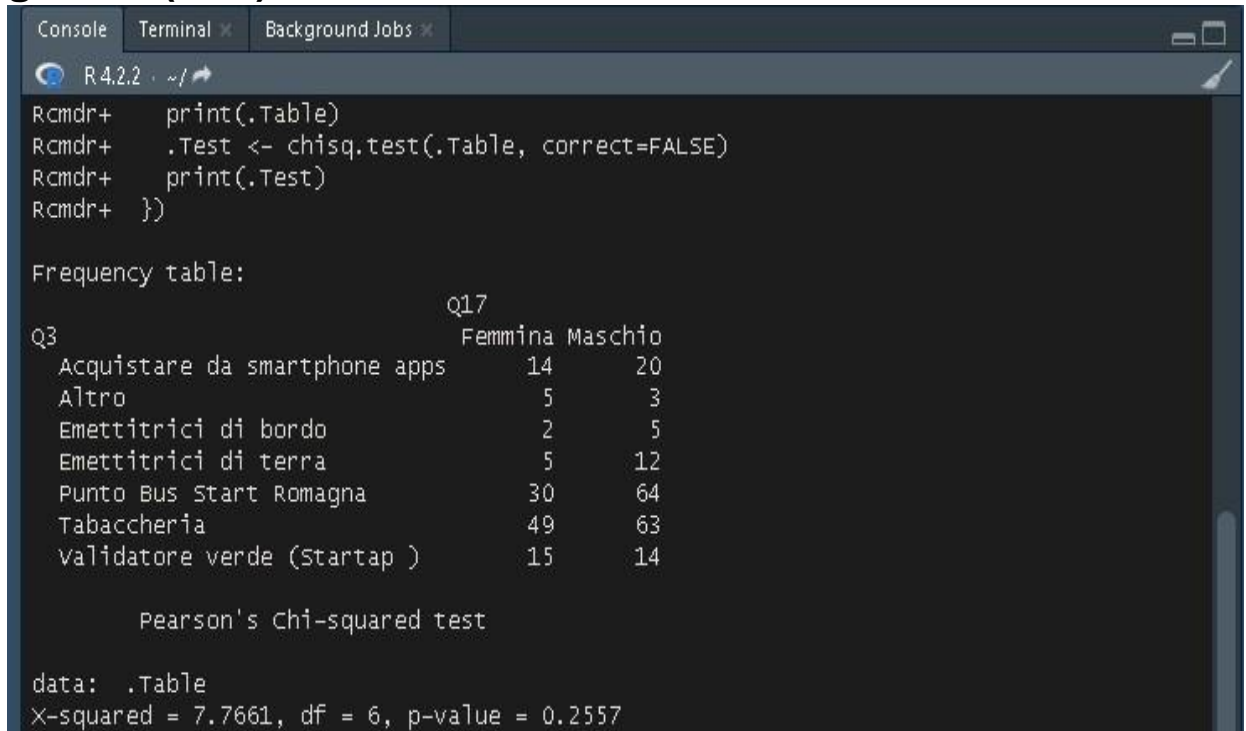
Metromare (18%)

#	Answer	%	Count
1	Metromare	17.81%	52
2	Bus	82.19%	240
	Total	100%	292

Chi- squared Test :

1) **the relationship between Purchase channels (Q3) and the gender (Q17):**

```
Console   Terminal ×   Background Jobs ×

  R 4.2.2 · ~/
Rcmdr+    print(.Table)
Rcmdr+    .Test <- chisq.test(.Table, correct=FALSE)
Rcmdr+    print(.Test)
Rcmdr+  })

Frequency table:
                                  Q17
Q3                              Femmina Maschio
  Acquistare da smartphone apps      14      20
  Altro                               5       3
  Emettitrici di bordo                2       5
  Emettitrici di terra                5      12
  Punto Bus Start Romagna            30      64
  Tabaccheria                        49      63
  Validatore verde (Startap )        15      14

        Pearson's Chi-squared test

data:  .Table
X-squared = 7.7661, df = 6, p-value = 0.2557
```

The test calculated a chi-square statistic of 7.7661 with 6 degrees of freedom and a p-value of 0.2557.

The p-value represents the probability of observing a chi-square statistic as extreme or more extreme than the one calculated, assuming that the null hypothesis (there is no association between the two variables) is true. A p-value of 0.2557 is larger than the commonly used significance level of 0.05, which suggests that there is not enough evidence to reject the null hypothesis. Therefore, there is **not** a significant association between the gender of the respondents and the method they prefer to buy the tickets.

2) the relationship between common travel methods (standard ticket, subscription, and other) and the frequency of using transport buses.

```
  R 4.2.2 · ~/ 
                                                        Q16
Q2                                                      è la mia prima volta a bordo
  - Lei di solito viaggia con : - Selected Choice                                 0
  Abbonamento                                                                     0
  Altro                                                                           1
  Biglietto Standard                                                              1
                                                        Q16
Q2                                                      Tutti I giorni
  - Lei di solito viaggia con : - Selected Choice                0
  Abbonamento                                                   44
  Altro                                                          1
  Biglietto Standard                                            87
                                                        Q16
Q2                                                      una volta a settimana
  - Lei di solito viaggia con : - Selected Choice                          0
  Abbonamento                                                              6
  Altro                                                                    0
  Biglietto Standard                                                      15
                                                        Q16
Q2                                                      una volta al mese
  - Lei di solito viaggia con : - Selected Choice                0
  Abbonamento                                                    3
  Altro                                                          1
  Biglietto Standard                                             6

        Pearson's Chi-squared test

data:  .Table
X-squared = 313.04, df = 18, p-value < 2.2e-16
```

This chi-square test shows that there is a statistically significant relationship between the common travel methods (standard ticket, subscription, and other) and the frequency of using transport buses. The p-value is less than 2.2e-16, which means that the probability of this relationship occurring by chance is very low. The X-squared value of 313.04 also indicates a strong association between the two variables. This can be interpreted as: the different travel methods have a big influence on the frequency of using transport buses.

3) The relationship between Purchase channels (Q3) and the frequency of using transport buses(Q16)

```
Frequency table:
                                    Q16
Q3                                    2/3 volte a settimana 2/3 volte al mese
  Acquistare da smartphone apps                17                    5
  Altro                                         0                    0
  Emettitrici di bordo                          3                    1
  Emettitrici di terra                          2                    2
  Punto Bus Start Romagna                      23                    6
  Tabaccheria                                  41                   18
  Validatore verde (Startap )                  11                    0
                                    Q16
Q3                                    è la mia prima volta a bordo Tutti I giorni
  Acquistare da smartphone apps                0                    6
  Altro                                         1                    7
  Emettitrici di bordo                          1                    1
  Emettitrici di terra                          0                   10
  Punto Bus Start Romagna                       0                   54
  Tabaccheria                                   0                   40
  Validatore verde (Startap )                   0                   18
                                    Q16
Q3                                    una volta a settimana una volta al mese
  Acquistare da smartphone apps                4                    2
  Altro                                         0                    0
  Emettitrici di bordo                          1                    0
  Emettitrici di terra                          1                    2
  Punto Bus Start Romagna                       9                    2
  Tabaccheria                                   7                    4
  Validatore verde (Startap )                   0                    0

        Pearson's Chi-squared test

data:   .Table
X-squared = 87.612, df = 30, p-value = 0.0000001504
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The results of the chi-square test show that there is a significant association between the place where the survey participants acquire their tickets (smartphone apps, other, on-board emitters, on-ground emitters, point of sale, tabaccheria, green validator) and the frequency of using transport buses (2/3 times a week, 2/3 times a month, first time, every day, once a week, once a month). The p-value is less than 0.05, which means that the null hypothesis (there is no association between the place of ticket acquisition and the frequency of using transport buses) can be rejected. This suggests that there is a relationship between the place of ticket acquisition and the frequency of using transport buses.

Considerations

A lot of people still use cash to buy their tickets in Tabaccheria because they find it easy, a possible solution is to turn the online and new purchasing methods easier as well as increase the number of vending points since people buy from Tabaccheria because these are considered a point where you can buy the ticket. Anyway we noticed that the use of contactless payments is increasing. A potential way to conditioning people to use apps would be to rearrange them in the easiest way possible giving incentives to elder people, flexibility is key. Half of the respondents think it is a ggod idea to give incentives to elder since they could save time and energy in the purchase process while the other half thinks it is a waste of time since these wouldn't use these services in any case since they are not used to deal with technology in everyday life. Having spoken with elder respondents we found that their most common response is that they wouldn't be capable to complete a purchase. It would be better to push informative campaigns to let them aware of the potential benefits these tools could bring to their experience.

Collaboration with Maggioli and Museo Fellini

Since from the beginning we found some technical issues to establish the score system that we proposed we tried to collaborate with other groups to make it possible. Group Maggioli offered us the use of their personal App "Municipium" that would allow the use of one additional tool to purchase tickets for the customers. This app does not only allows to receive real time data about public transport but also gives people info about their municipality so it would be a great incentive to develop this strategic tool. In this app the Romagna province is not yet taken into consideration but this would be a concern of Maggioli group if both the companies decide to effectively carry on this project, also regarding the score system that would be created and available thanks to the help of Maggioli and Start Romagna technicians.

In relation to the Museo Fellini we thought about a potential prize for the score system. The idea would be to grant a free entry to the Museum to all those customers who travel a specific number of times on Start Romagna facilities. This would incentive the ride of people on local public transports as well the visibility and notoriety of Museo Fellini in the province of Rimini.

Acknowledgement

We are glad to say that it has been a pleasure to work with the Start Romagna group, they hosted us giving their precious time and information to carry on our work in the best way possible. We are definitely going to promote this company to the tutors of University of Bologna for potential future projects and we hope that our work helped in the creation of a stronger company. Our best regards from Francesco, Dalmar, Hassan and Saksham.