The fascinating differences in the way we use our smartphones

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Project Objective

Our purpose is to provide insights for mobile phone stakeholders to help them target the right group of customers for new phone launches by helping them understand customer preferences and usage characteristics.

Methodology

- A survey of 18 questions was sent to various people across the globe. Link to survey is here
- 110 responses were received
- The complete project sits here

Analysis

- Data cleaning was performed in python
  - Standardize for grammatical consistency
  - Correct column placements and addition of ID column
- Exploratory data analysis
  - Using power BI
  - Descriptive statistics in SAS

- Clustering
  - Variables in question 10
  - Checking perception bias
  - Standardizing variables
  - Principal component analysis
  - Clustering on new standardized variables
  - Clustering on first 4 components from PCA
- Clustering Interpretation
  - T Test
  - Explanatory analysis

Equality of Variances - FOLDED F

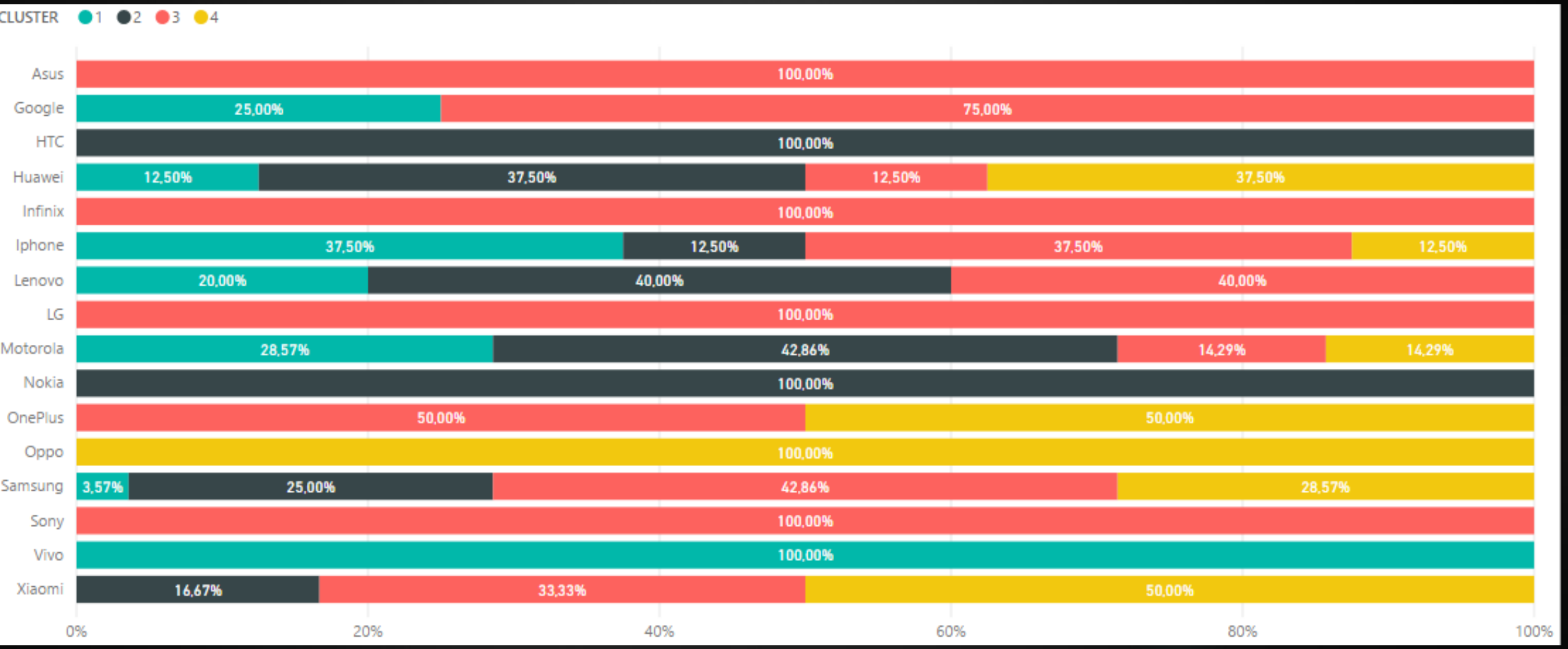
Etichette di riga	1	2	3	4
BatteryLife	0,0233	0,0692	0,001	0
Brand	0,0229	0,011	0,2082	0,0297
CameraQuality	0,0012	0,887	0,2367	0,0002
Color	0,7184	0,8531	0,0064	0,9428
OS	0	0,0002	0,0005	0
Price	0,9149	0	0,0042	0,6534
PromotionsAvailable	0,0128	0,9646	0,1798	0,1466
Recom_Frnd_Fly	0,1527	0,4445	0,416	0,319
Trends	0,4116	1	0,3151	0,5467
ValueForMoney	0,3039	0,0437	0,0029	0,7519

Ttest

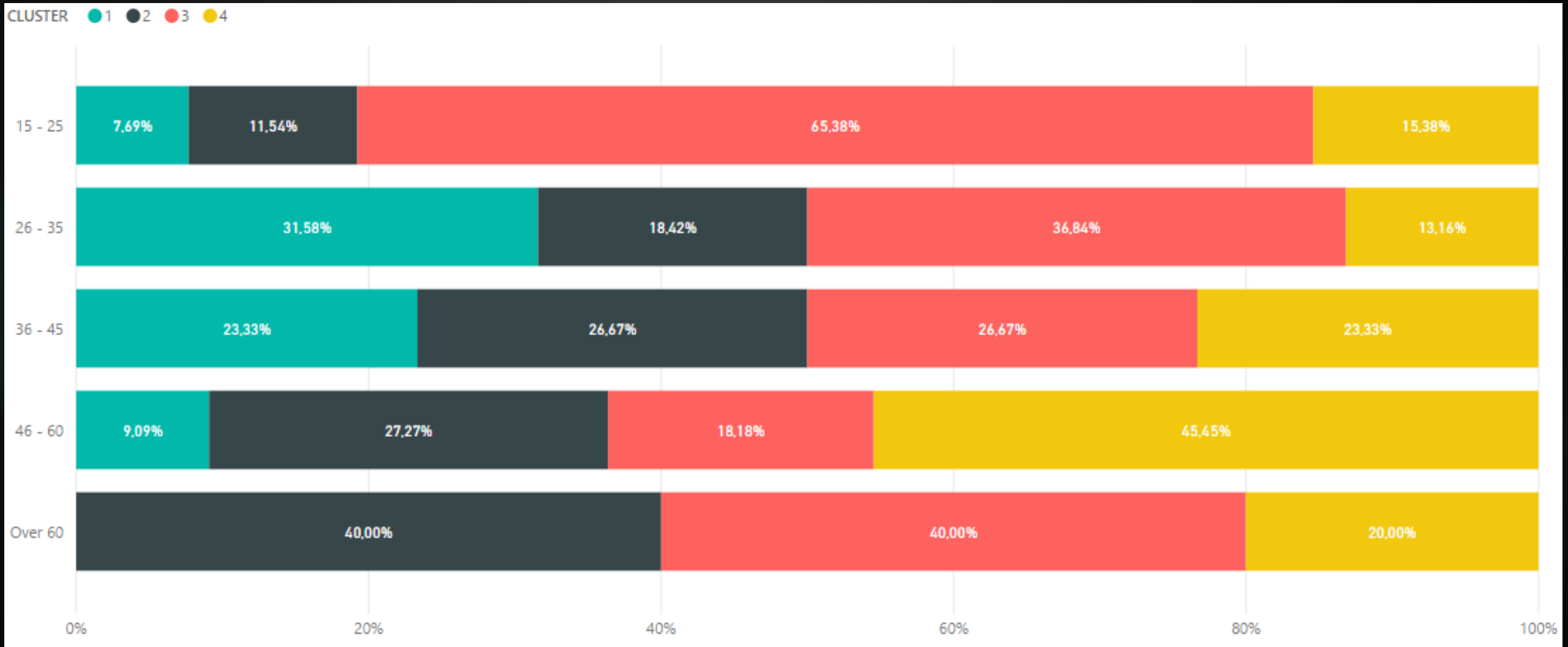
Etichette di riga	_Pr > F	Pr > |t|_	_Pr > F	Pr > |t|_	_Pr > F	Pr > |t|_	_Pr > F	Pr > |t|_
BatteryLife	**0,0233**	**0,0061**	**0,0692**	**0**	**0,001**	**0**	**0**	**0**
Folded F	0,0233		0,0692		0,001		0	
Pooled		0,0056		0		0		0
Satterthwaite		0,0005		0		0		0
Brand	**0,0229**	**0,0016**	**0,011**	**0,0002**	**0,2082**	**0,1837**	**0,0297**	**0**
Folded F	0,0229		0,011		0,2082		0,0297	
Pooled		0,0016		0,0002		0,1032		0
Satterthwaite		0		0		0,0805		0
CameraQuality	**0,0012**	**0,0003**	**0,887**	**0,1593**	**0,2367**	**0,1217**	**0,0002**	**0**
Folded F	0,0012		0,887		0,2367		0,0002	
Pooled		0,0003		0,0749		0,0691		0
Satterthwaite		0		0,0844		0,0526		0
Color	**0,7184**	**1,1003**	**0,8531**	**0,0106**	**0,0064**	**0,0009**	**0,9428**	**0,036**
Folded F	0,7184		0,8531		0,0064		0,9428	
Pooled		0,5586		0,0048		0,0008		0,0166
Satterthwaite		0,5417		0,0058		0,0001		0,0194
OS	**0**	**0,0003**	**0,0002**	**0**	**0,0005**	**0**	**0**	**0**
Folded F	0		0,0002		0,0005		0	
Pooled		0,0003		0		0		0
Satterthwaite		0		0		0		0
Price	**0,9149**	**1,5505**	**0**	**0**	**0,0042**	**0,0002**	**0,6534**	**1,1058**
Folded F	0,9149		0		0,0042		0,6534	
Pooled		0,7768		0		0,0002		0,5428
Satterthwaite		0,7737		0		0		0,563

PromotionsAvailable	**0,0128**	**0,0002**	**0,9646**	**0,0466**	**0,1798**	**0,093**	**0,1466**	**0,0016**
Folded F	0,0128		0,9646		0,1798		0,1466	
Pooled		0,0002		0,0217		0,0545		0,0013
Satterthwaite		0		0,0249		0,0385		0,0003
Recom_Frnd_Fly	**0,1527**	**0,0044**	**0,4445**	**0,574**	**0,416**	**0,9282**	**0,319**	**0,0083**
Folded F	0,1527		0,4445		0,416		0,319	
Pooled		0,0034		0,2661		0,4746		0,0054
Satterthwaite		0,001		0,3079		0,4536		0,0029
Trends	**0,4116**	**0,2629**	**1**	**0,0825**	**0,3151**	**0,0365**	**0,5467**	**0,0138**
Folded F	0,4116		1		0,3151		0,5467	
Pooled		0,1478		0,0383		0,0212		0,0077
Satterthwaite		0,1151		0,0442		0,0153		0,0061
ValueForMoney	**0,3039**	**1,058**	**0,0437**	**0**	**0,0029**	**0**	**0,7519**	**0,0248**
Folded F	0,3039		0,0437		0,0029		0,7519	
Pooled		0,5542		0		0		0,0124
Satterthwaite		0,5038		0		0		0,0124

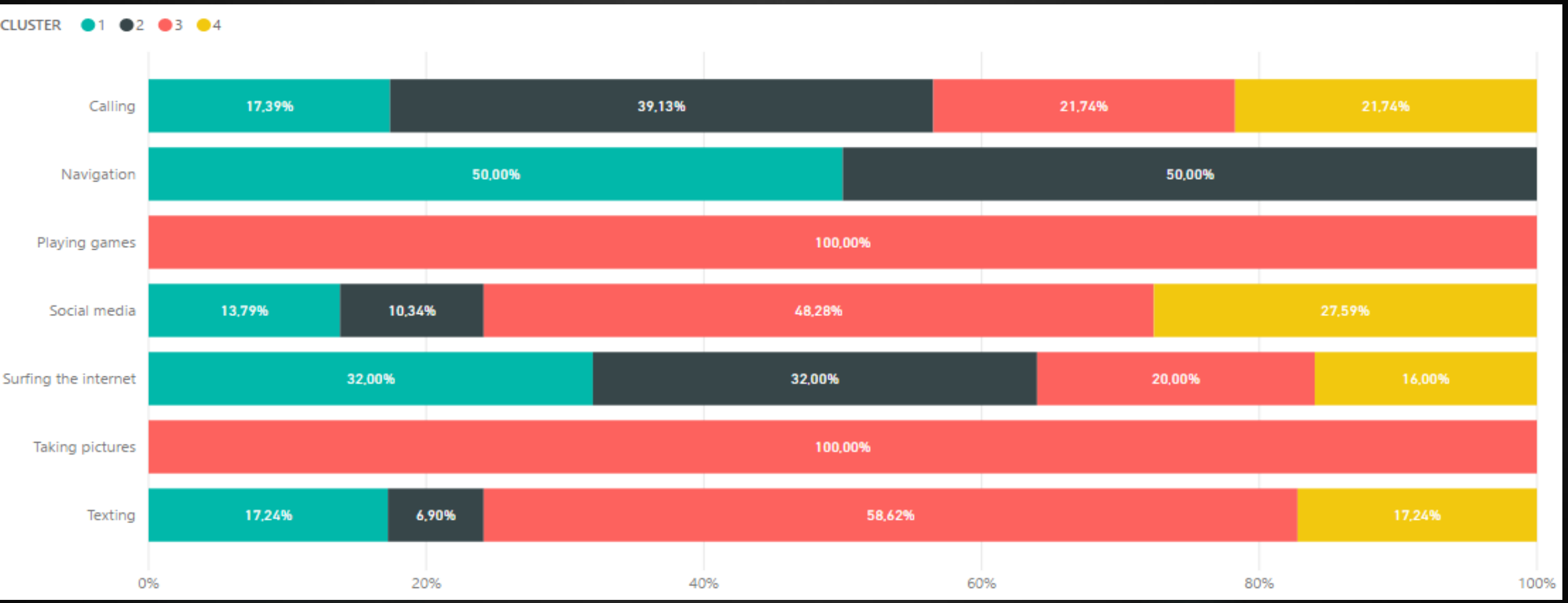
Cluster by brand



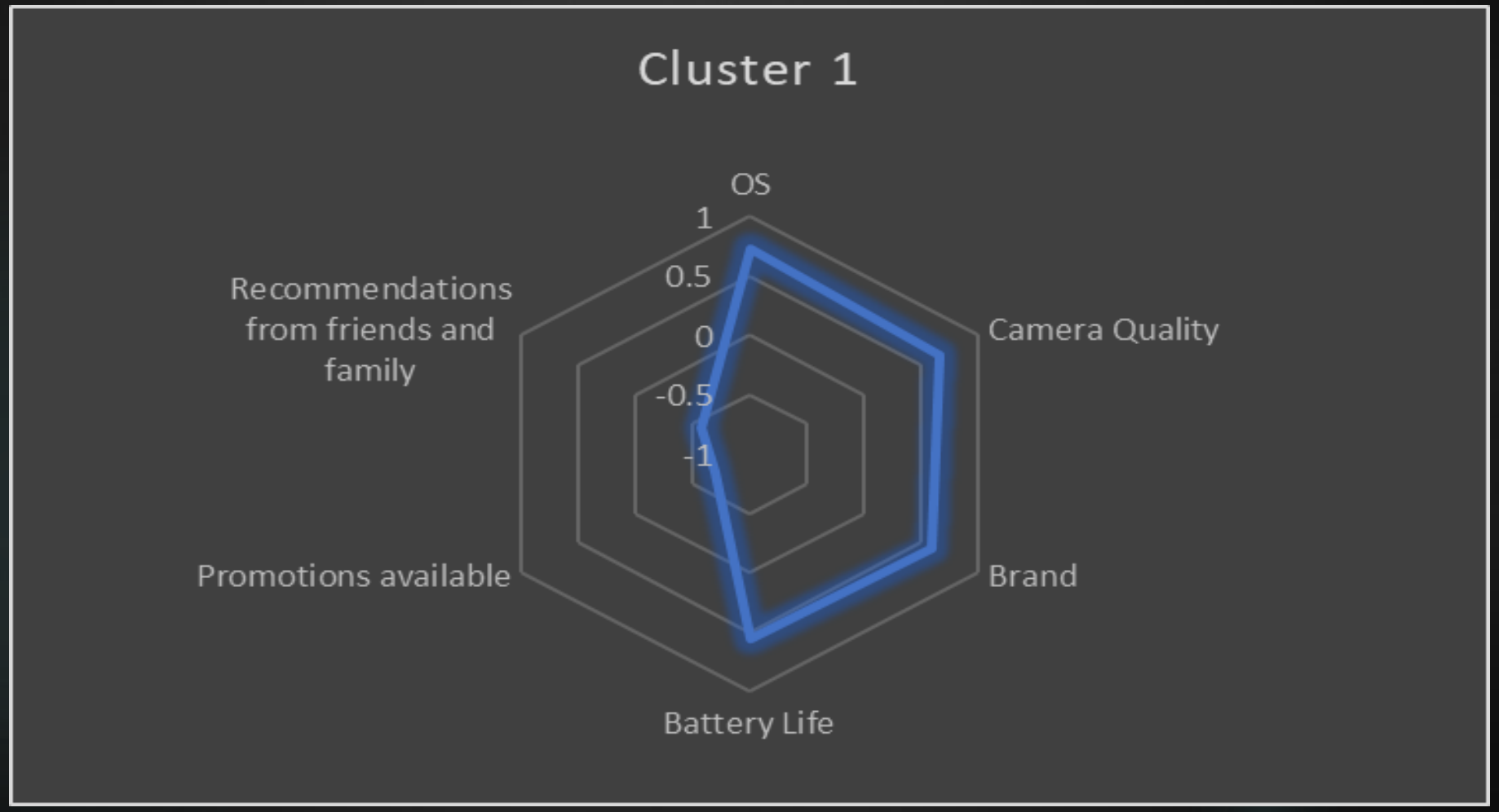
Cluster by age



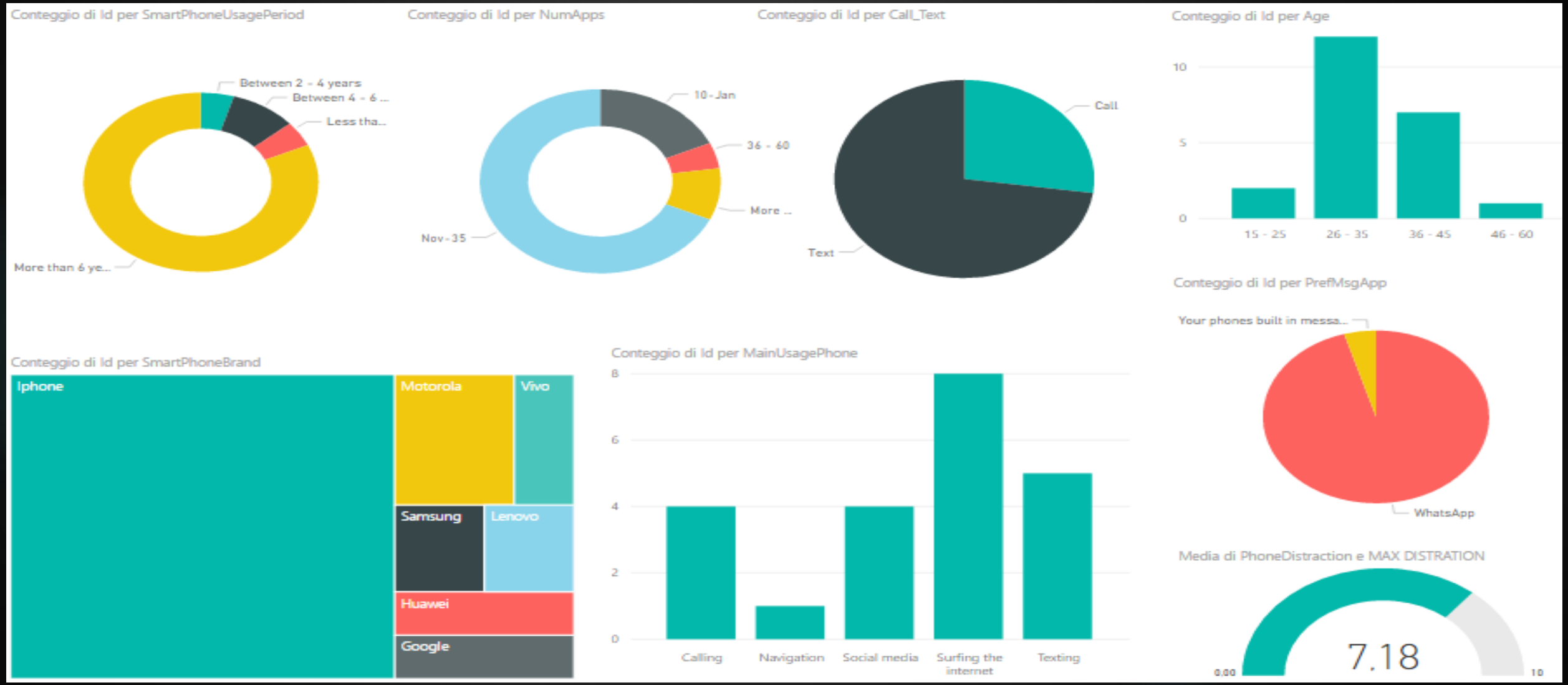
Cluster for primary use of phone



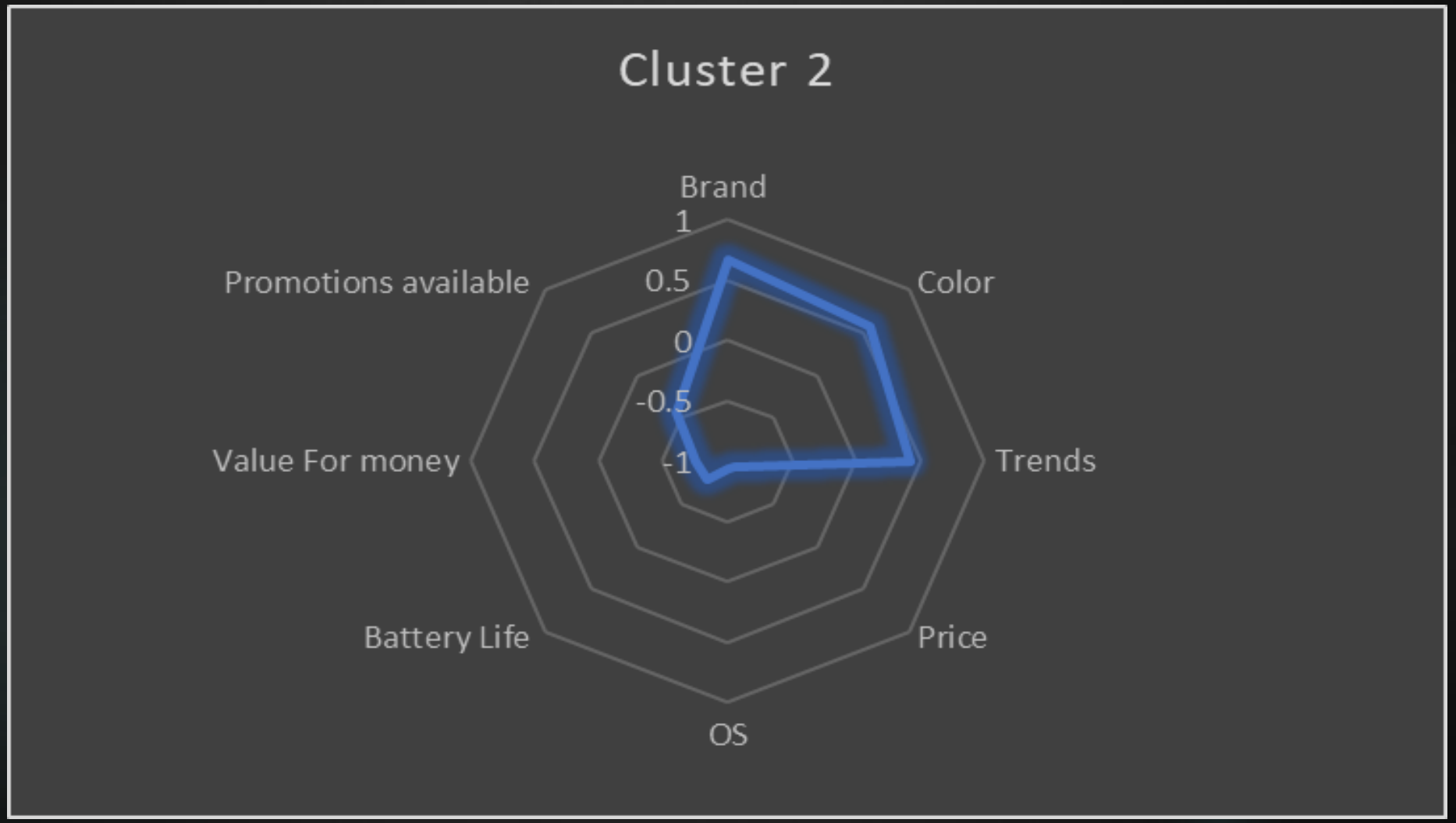
Cluster 1


Cluster 1
OS
1
0.5
0
-0.5
-1
Camera Quality
Brand
Battery Life
Promotions available
Recommendations from friends and family

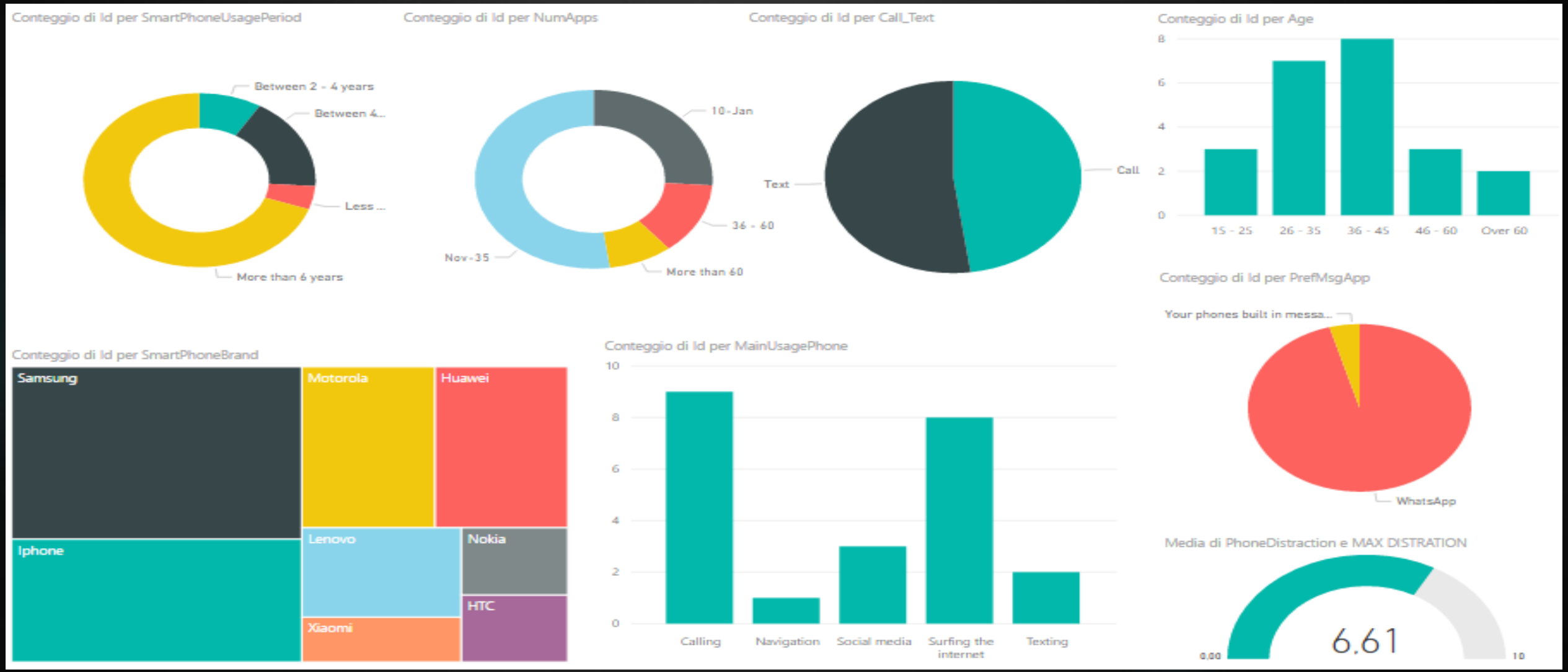
Cluster 1


Conteggio di Id per SmartPhoneUsagePeriod
Between 2 - 4 years
Between 4 - 6 ...
Less tha...
More than 6 ye...
Conteggio di Id per NumApps
10 - Jan
36 - 60
More ...
Nov - 35
Conteggio di Id per Call_Text
Call
Text
Conteggio di Id per Age
10
5
0
15 - 25
26 - 35
36 - 45
46 - 60
Conteggio di Id per PrefMsgApp
Your phones built in messa...
WhatsApp
Conteggio di Id per SmartPhoneBrand
Iphone
Motorola
Vivo
Samsung
Lenovo
Huawei
Google
Conteggio di Id per MainUsagePhone
8
6
4
2
0
Calling
Navigation
Social media
Surfing the internet
Texting
Media di PhoneDistraction e MAX DISTRATION
0.00
7.18
10

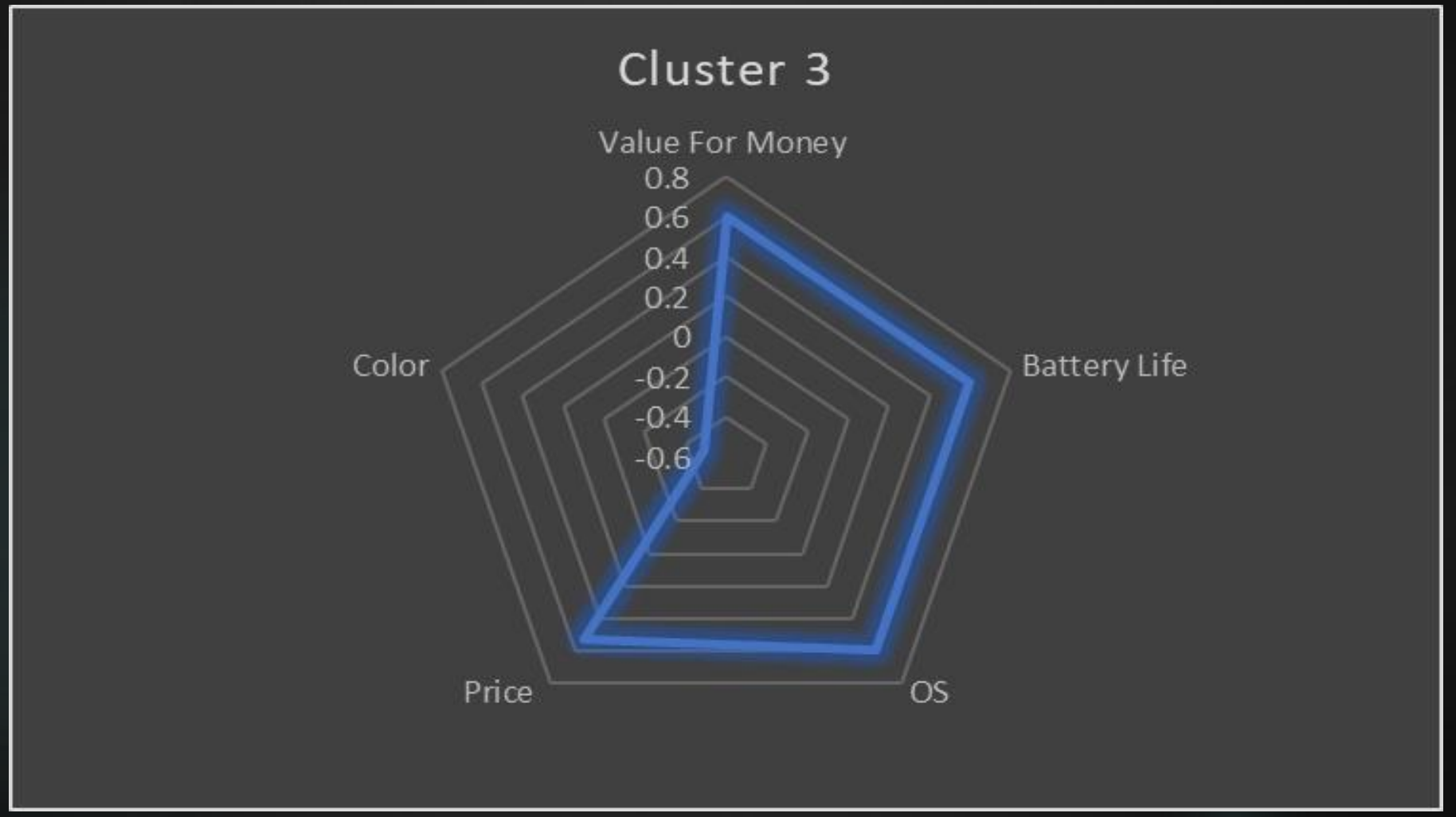
Cluster 2


Cluster 2
Brand
1
0.5
0
-0.5
-1
Color
Trends
Price
OS
Battery Life
Value For money
Promotions available

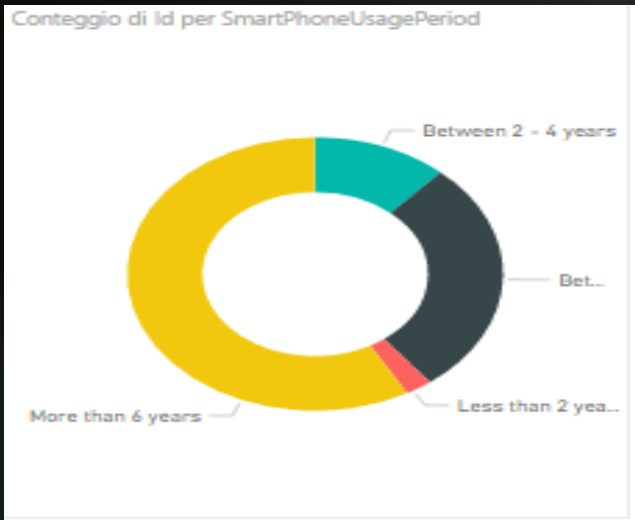
Cluster 2

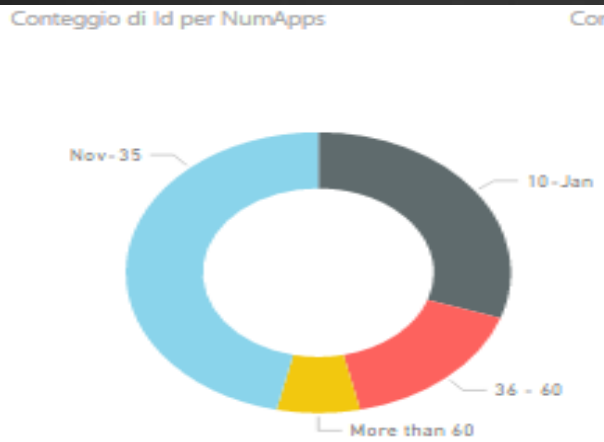

Conteggio di Id per SmartPhoneUsagePeriod
Between 2 - 4 years
Between 4...
Less ...
More than 6 years
Conteggio di Id per NumApps
10 - Jan
36 - 60
Nov - 35
More than 60
Conteggio di Id per Call_Text
Text
Call
Conteggio di Id per Age
8
6
4
2
0
15 - 25
26 - 35
36 - 45
46 - 60
Over 60
Conteggio di Id per PrefMsgApp
Your phones built in messa...
WhatsApp
Conteggio di Id per SmartPhoneBrand
Samsung
Motorola
Huawei
Iphone
Lenovo
Nokia
HTC
Xiaomi
Conteggio di Id per MainUsagePhone
10
8
6
4
2
0
Calling
Navigation
Social media
Surfing the internet
Texting
Media di PhoneDistraction e MAX DISTRATION
0.00
6.61
10

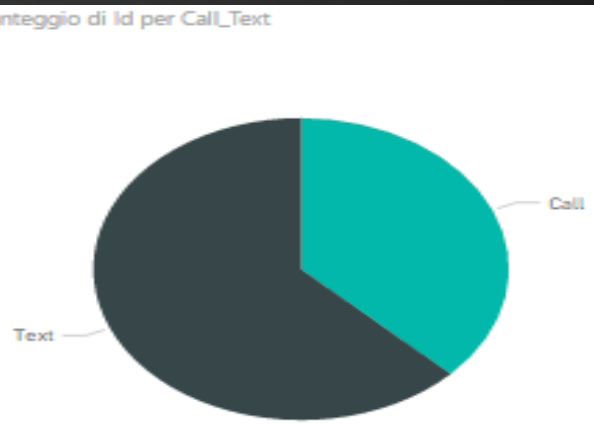
Cluster 3

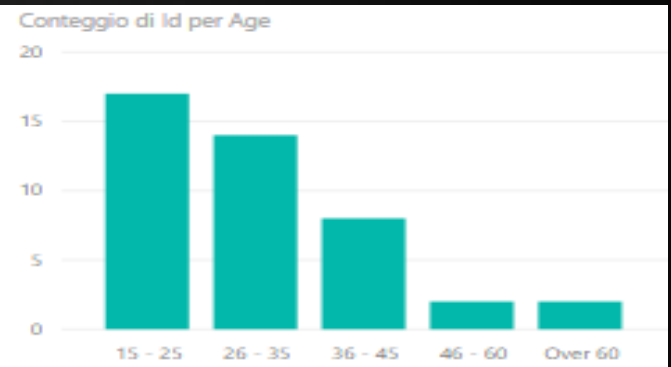

Cluster 3
Value For Money
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
Battery Life
OS
Price
Color

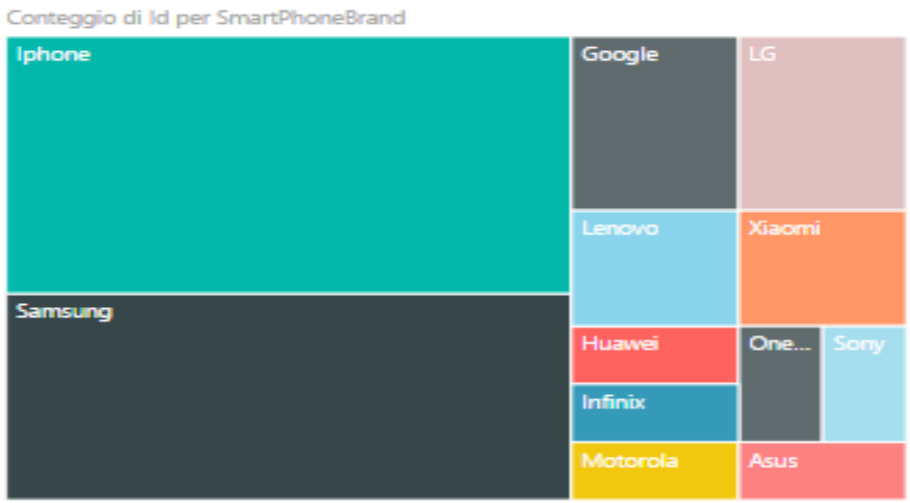
Cluster 3

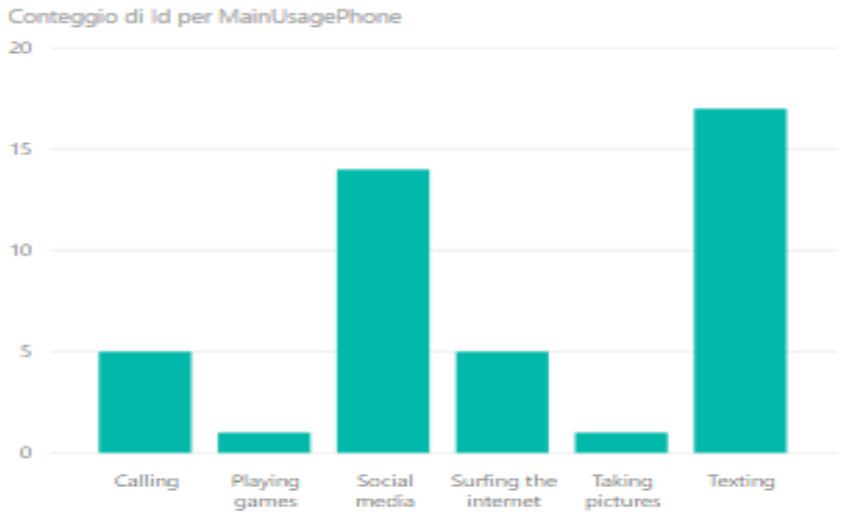

Conteggio di Id per SmartPhoneUsagePeriod
Between 2 - 4 years
Bet...
Less than 2 yea...
More than 6 years


Conteggio di Id per NumApps
Nov-35
10-Jan
36 - 60
More than 60

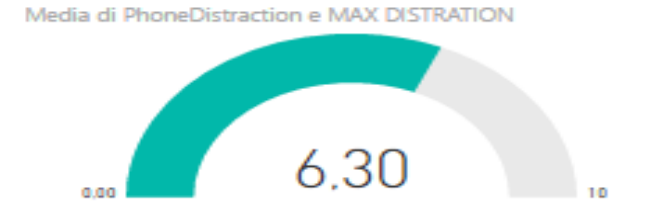

Conteggio di Id per Call_Text
Call
Text


Conteggio di Id per Age
20
15
10
5
0
15 - 25
26 - 35
36 - 45
46 - 60
Over 60

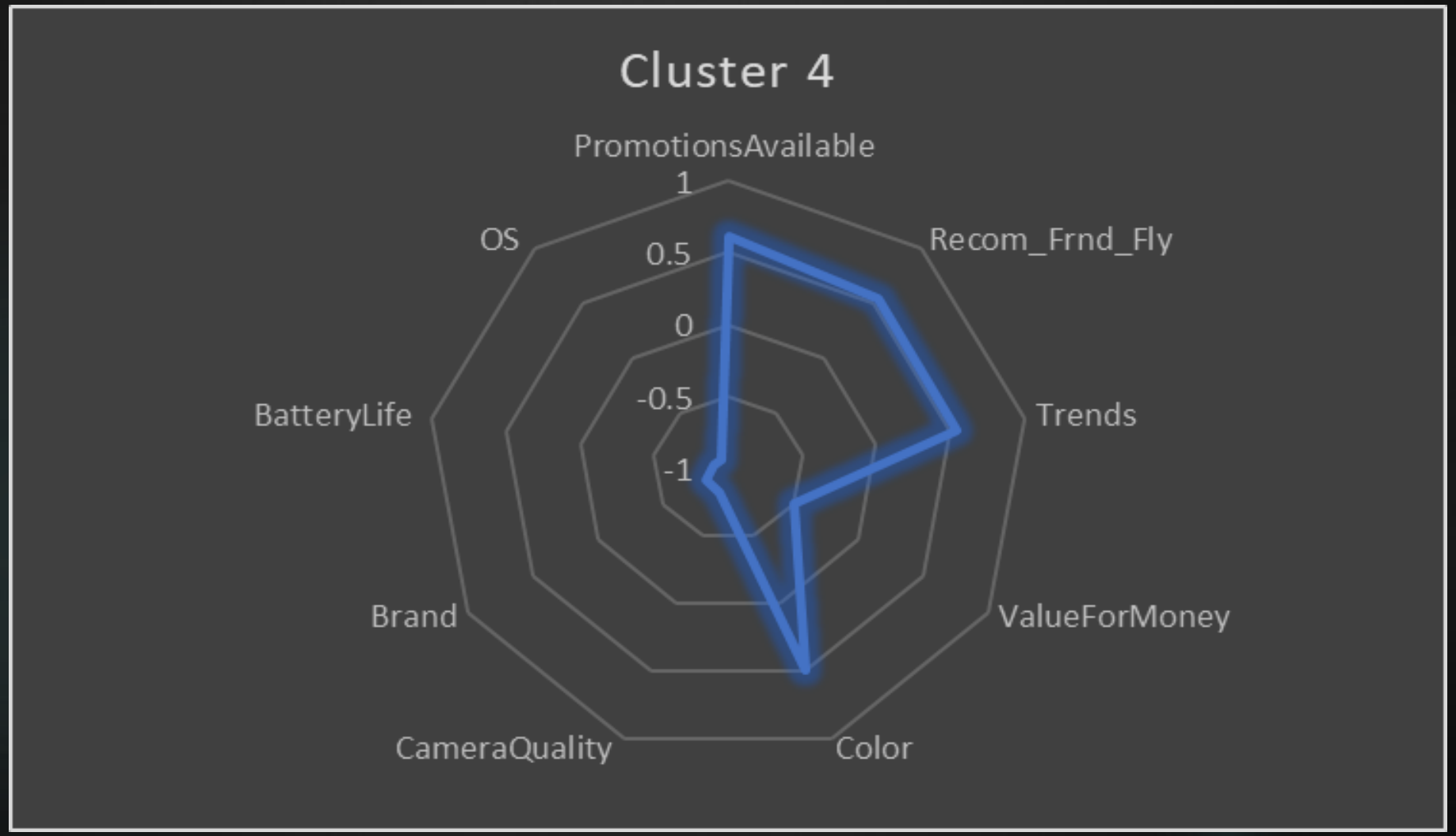

Conteggio di Id per SmartPhoneBrand
Iphone
Samsung
Google
LG
Lenovo
Xiaomi
Huawei
One...
Sony
Infinix
Motorola
Asus


Conteggio di Id per MainUsagePhone
20
15
10
5
0
Calling
Playing games
Social media
Surfing the internet
Taking pictures
Texting

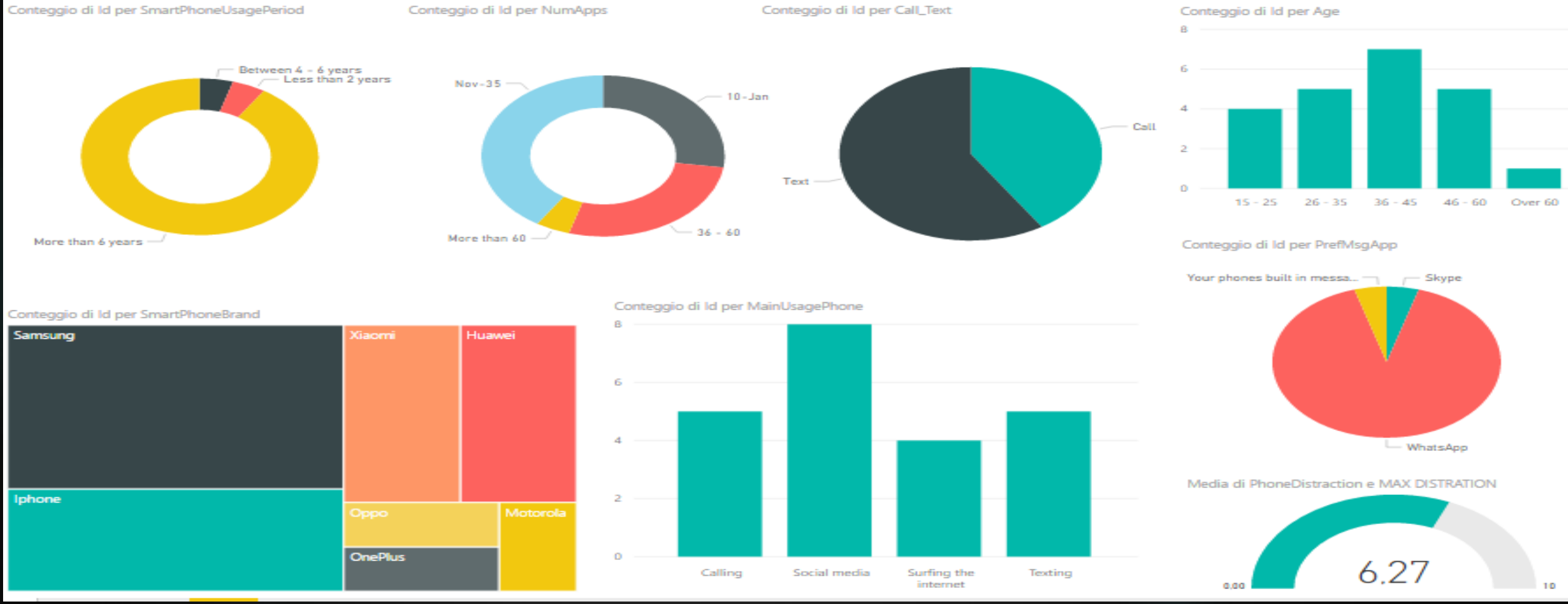
Conteggio di Id per PrefMsgApp
Your phones built in messa...
Telegram
WhatsApp


Media di PhoneDistraction e MAX DISTRATION
6.30
0.00
10

Cluster 4


Cluster 4
PromotionsAvailable
1
0.5
0
-0.5
-1
Recom_Frnd_Fly
Trends
ValueForMoney
Color
CameraQuality
Brand
BatteryLife
OS

Cluster 4


Conteggio di Id per SmartPhoneUsagePeriod
Between 4 - 6 years
Less than 2 years
More than 6 years
Conteggio di Id per NumApps
Nov-35
10-Jan
More than 60
36 - 60
Conteggio di Id per Call_Text
Call
Text
Conteggio di Id per Age
8
6
4
2
0
15 - 25
26 - 35
36 - 45
46 - 60
Over 60
Conteggio di Id per PrefMsgApp
Your phones built in messa...
Skype
WhatsApp
Conteggio di Id per SmartPhoneBrand
Samsung
Xiaomi
Huawei
Iphone
Oppo
Motorola
OnePlus
Conteggio di Id per MainUsagePhone
8
6
4
2
0
Calling
Social media
Surfing the internet
Texting
Media di PhoneDistraction e MAX DISTRATION
0.00
6,27
10

Cluster Summary

Cluster 1

- 26 – 35
- Main use - surfing
- Love the Iphone
- WhatsApp

Cluster 2

- 36 - 45
- Main use – calling, surfing
- Prefer Samsung
- WhatsApp

Cluster 3

- 15 - 25
- Main use – texting, social media
- Iphone then Samsung
- WhatsApp

Cluster 4

- 46 - 60
- Main use – social media
- Prefer Samsung
- Skype, WhatsApp