

Introducción

The present analysis aims to identify **distinctive patterns** and **characteristics within the groups of customers with positive and negative Churn**. To do so, we will **perform a customer segmentation** using clustering techniques (KMeans) in each group. The ultimate **goal is to develop more robust and efficient retention strategies, adapted to the specific needs and behaviours of each identified segment**.

Positive Churn vs. Negative Churn

Averages of the features separated into Positive Churn and Negative Churn.

mean	Positive Churn	Negative Churn
SeniorCitizen	0.254682	0.128721
Partner	0.357945	0.528218
Dependents	0.174425	0.344801
tenure	17.979133	37.569965
PhoneService	0.909042	0.901044
PaperlessBilling	0.749064	0.535562
MonthlyCharges	74.441332	61.265124
TotalCharges	1531.796094	2552.882494
gender_Male	0.497592	0.507344
Multiple Lines	0.454789	0.409934
Internet Service Fiber	0.693954	0.347700
Internet Service No	0.060460	0.273096
Online Security Yes	0.157838	0.333204
Online Backup Yes	0.279829	0.368380
DeviceProtection_Yes	0.291600	0.362775
TechSupport_Yes	0.165864	0.335137
StreamingTV_Yes	0.435527	0.365868
StreamingMovies_Yes	0.437667	0.369927

PaymentMethod_Credit card (automatic)	0.124131	0.249324
PaymentMethod_Electronic check	0.573034	0.250097
PaymentMethod_Mailed check	0.164794	0.252029
contract_MtoM	0.885500	0.429068
contract_OneYear	0.088818	0.252609
contract_TwoYear	0.025682	0.318322

Analysis

Customers with positive Churn have the following predominant characteristics:

- Higher proportion of older adults who cancel the service.
- Predominantly single clients or clients without dependents.
- They leave earlier, spend less time using our service. This is also reflected in the Total Charges.
- Most use electronic billing.
- Monthly Charges are higher compared to negative Churn. High monthly charges could be related to dissatisfaction.
- Most have fibre optic, but still cancel. There may be a link to high charges for these services.
- Lower take-up of additional services.
- Payment by electronic cheque is associated with higher churn, possibly because it is less of a commitment.
- Almost all have monthly contracts, these are a clear predictor of churn because of the ease of cancellation.

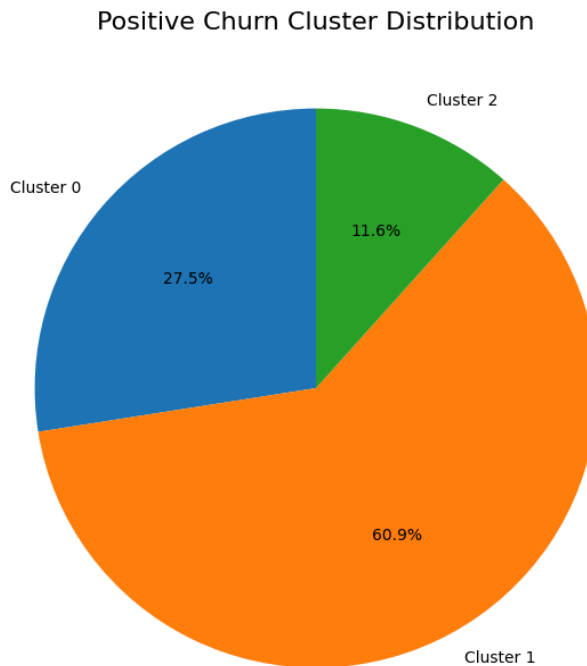
Customers with negative Churn have the following predominant characteristics:

- Higher rate of partners and/or dependents in their care.
- More loyal and long-term clients. Longer contracts are clearly associated with lower churn rates.
- Lower monthly charges. Customers with lower costs show higher satisfaction.
- Increased use of additional services. This can reinforce retention.

- Higher payment rate with Credit Card Automatic.

Positive Churn

After Elbow and Silhouette score visualization, we can separate customers who are in danger of abandoning us into 3 main groups:



Cluster 0 (27.5%)

Mean

Senior Citizen: 0.14
Partner: 0.24
Dependents: 0.20
Tenure: 8.38 (months)
Phone Services: 0.69
Paperless Billing: 0.55
Monthly Charges: 41.18
Total Charges: 350.22
Gender Male: 0.51
Multiple Lines: 0.085
Internet Service Fiber: 0.068
Internet Service No: 0.21
Online Security Yes: 0.14
Online Backup Yes: 0.14
Device Protection Yes: 0.14

Tech Support Yes: 0.12
Streaming TV Yes: 0.13
Streaming Movies Yes:0.14
Payment Method Credit Card Automatic: 0.10
Payment Method Electronic Check: 0.36
Payment Method Mailed Check: 0.41
Contract Month to Month: 0.96
Contract One Year: 0.02
Contract Two Years: 0.007

Comment:

"Predominantly profiles without a partner or dependents, who have only been using our services for a short time, with low monthly charges and only one contracted line. They do not contract fiber or additional services. Mostly month-to-month renewal contracts."

Cluster 1 (60.9%)

Mean

Senior Citizen: 0.31
Partner: 0.35
Dependents: 0.13
Tenure: 15.93 (months)
Phone Services: 0.69
Paperless Billing: 0.99
Monthly Charges: 86.06
Total Charges: 1434.02
Gender Male: 0.47
Multiple Lines: 0.58
Internet Service Fiber: 0.97
Internet Service No: 0
Online Security Yes: 0.11
Online Backup Yes: 0.27
Device Protection Yes: 0.28
Tech Support Yes: 0.11
Streaming TV Yes: 0.49
Streaming Movies Yes:0.49
Payment Method Credit Card Automatic: 0.10
Payment Method Electronic Check: 0.70
Payment Method Mailed Check: 0.064
Contract Month to Month: 1
Contract One Year: 0
Contract Two Years: 0

Comment:

"Predominantly profiles without a partner or dependents. With an average length of time using our services. A high rate of fibre contracting as well as additional services. All of them are contracts that are renewed month by month."

**One of the suspicions with this cluster is that its characteristics would suggest that it is a young audience, but it shows a high percentage of Senior Citizens. As a result, we tested 4 clusters instead of 3 to confirm which number of segments is the most accurate.*

Cluster 2 (11.6%)

Mean

Senior Citizen: 0.18

Partner: 0.63

Dependents: 0.32

Tenure: 51.21 (months)

Phone Services: 0.69

Paperless Billing: 0.94

Monthly Charges: 92.26

Total Charges: 4843.30

Gender Male: 0.53

Multiple Lines: 0.66

Internet Service Fiber: 0.71

Internet Service No: 0.004

Online Security Yes: 0.41

Online Backup Yes: 0.59

Device Protection Yes: 0.66

Tech Support Yes: 0.52

Streaming TV Yes: 0.81

Streaming Movies Yes: 0.82

Payment Method Credit Card Automatic: 0.28

Payment Method Electronic Check: 0.36

Payment Method Mailed Check: 0.092

Contract Month to Month: 0.096

Contract One Year: 0.70

Contract Two Years: 0.20

Comment:

"Audience with a tendency to have a partner. Have been using our services for some time. Very high monthly expenses, in addition to

high total expenses. Contracting fiber service, in addition to a high tendency to contract other services, especially Streaming. 70% have annual contracts."

Resume

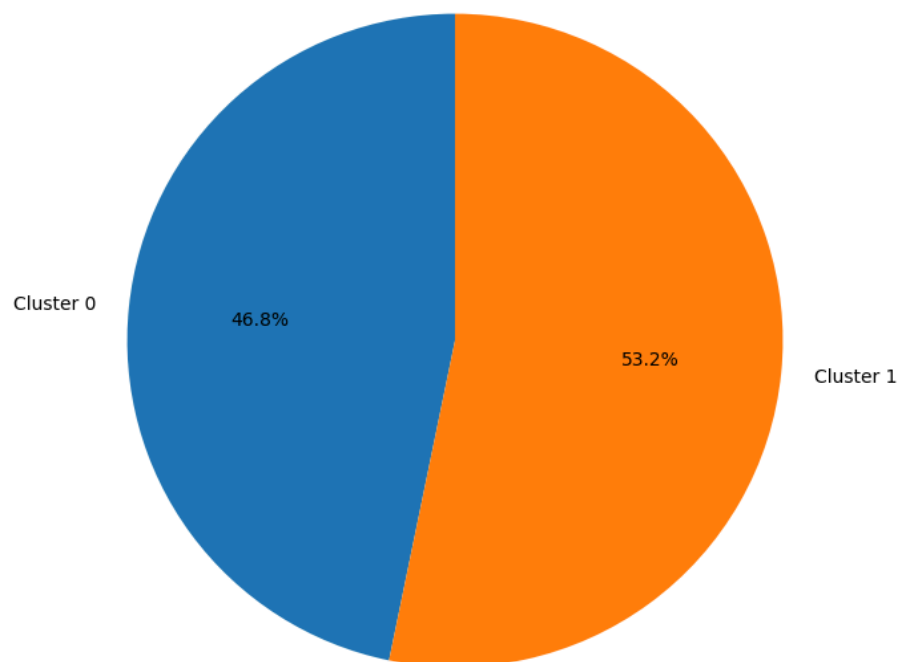
One of the main suspicions that we can have by analysing the behaviour and characteristics of the clients that abandon us is the lack of adaptation of our prices to profiles that want service only for themselves or that do not want all the services that we can offer them. Creating plans and/or offers more adapted to these users would be a great way to retain them.

Cluster	Description	Cause Detected	Strategy
Cluster 0: New, Disconnected	New customers, low charges, no additional services.	Low perceived value in the service.	<ul style="list-style-type: none">- Offer basic customized plans at competitive prices.- Promotions that include 1 or 2 additional services free of charge for a limited time.
Cluster 1: Dissatisfied	High charges, month to month, no added value.	High price and lack of adaptability.	<ul style="list-style-type: none">- Create modular plans where the customer chooses only the services they need, adjusting the price.- Offer personalized discounts to build loyalty among customers with a high risk of abandonment.
Cluster 2: Valuable Premium	Long-standing clients, high charges, full services.	High value, but lack of active engagement.	<ul style="list-style-type: none">- Design exclusive loyalty programmes (bonuses, free additional services, seniority discounts).- Proactive contact to understand needs and improve satisfaction.

Negative Churn

After Elbow and Silhouette score visualization, we can separate loyal customers into 2 main groups:

Positive Churn Cluster Distribution



Cluster 0 (46.8%)

Mean

Senior Citizen: 0.18
Partner: 0.65
Dependents: 0.34
Tenure: 51 (months)
Phone Services: 0.91
Paperless Billing: 0.67
Monthly Charges: 87.11
Total Charges: 4489.49
Gender Male: 0.50
Multiple Lines: 0.62

Internet Service Fiber: 0.58
Internet Service No: 0
Online Security Yes: 0.54
Online Backup Yes: 0.64
Device Protection Yes: 0.66
Tech Support Yes: 0.57
Streaming TV Yes: 0.69
Streaming Movies Yes: 0.70
Payment Method Credit Card Automatic: 0.31
Payment Method Electronic Check: 0.29
Payment Method Mailed Check: 0.086
Contract Month to Month: 0.29
Contract One Year: 0.31
Contract Two Years: 0.39

Comment:

"Most have Internet service, just over half have fiber and most have additional services. They are also customers who have been with us on average longer, with contracts split between monthly, annual and bi-annual."

Cluster 1 (53.2%)

Mean

Senior Citizen: 0.076
Partner: 0.41
Dependents: 0.34
Tenure: 25.54 (months)
Phone Services: 0.89
Paperless Billing: 0.41
Monthly Charges: 38.55
Total Charges: 851.14
Gender Male: 0.50
Multiple Lines: 0.21
Internet Service Fiber: 0.13
Internet Service No: 0.51
Online Security Yes: 0.15
Online Backup Yes: 0.12
Device Protection Yes: 0.09
Tech Support Yes: 0.12
Streaming TV Yes: 0.075
Streaming Movies Yes: 0.079
Payment Method Credit Card Automatic: 0.19
Payment Method Electronic Check: 0.20
Payment Method Mailed Check: 0.39
Contract Month to Month: 0.54
Contract One Year: 0.20
Contract Two Years: 0.25

Comment:

"Young/adult audience. Newer customers compared to Cluster 0. With lower monthly charges. Tend not to want multi-line, fibre, or additional services. This makes sense as almost half of this group does not use internet service."