



# CUSTOMER CHURN: TELCO CASE STUDY

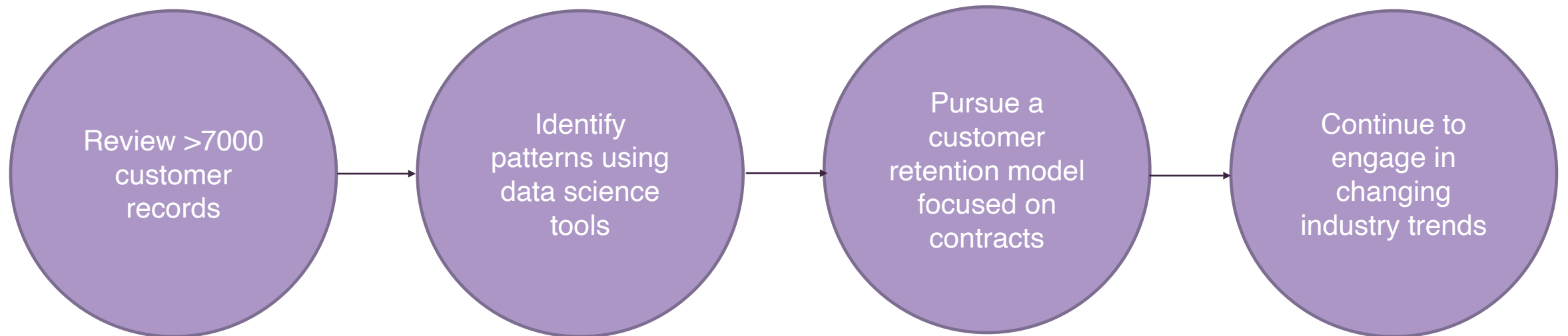
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# EXECUTIVE SUMMARY

**You've worked hard for your customers. Now – how do you retain them?**

Using customer data from Telco, a telecom data company, we provide a road map for successful customer retention.

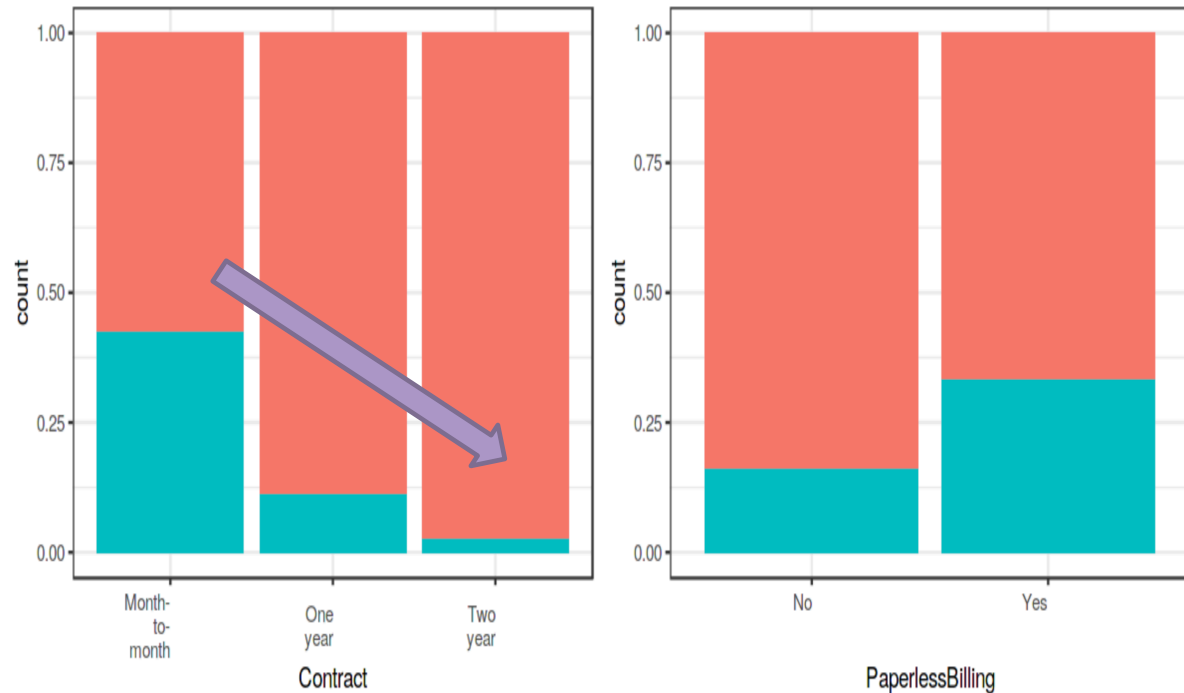


# RESEARCH OBJECTIVE, PLAN, AND METHODOLOGY

Using the Kaggle data set of Telco Customer Churn, we aim to use two distinctive models to develop recommendations based on identifying when a customer will stop doing business with a company



# DATA FINDINGS: CUSTOMER CHURN MODEL



As contract length increases, likelihood of churn decreases

## CONTRACTS ARE KEY

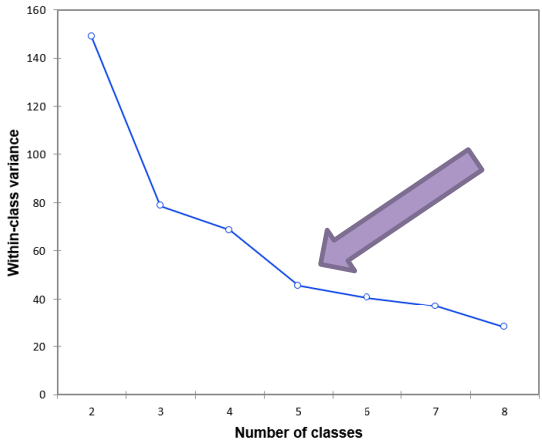
- If a customer has a **one-year contract** and not using paperless billing, they are unlikely to churn
- If a customer has a **month-to-month contract**, and is in the **tenure group of 0-12 months**, and uses paperless billing, they are more likely to churn (**78% chance of churn**)

# DATA FINDINGS: CUSTOMER SEGMENTATION

The strongest correlation is **whether someone has internet or not.**

**Contract, multiple lines and paperless billing** also are strong indicators.

Variables	gender	SeniorCitizen	Partner	Dependents	tenure	PhoneService	MultipleLines	InternetService	OnlineSecurity	OnlineBackup	DeviceProtection	TechSupport	StreamingTV	StreamingMovies	Contract	PaperlessBilling	PaymentMethod
gender		-0.002	-0.002	0.011	0.005	-0.006	0.000	-0.009	0.002	0.003	0.006	0.004	0.004	0.004	0.000	-0.012	-0.005
SeniorCitizen	-0.002		0.016	-0.211	0.017	0.009	0.100	0.230	-0.201	-0.179	-0.180	-0.207	-0.170	-0.167	-0.143	0.157	-0.094
Partner	-0.002	0.016		0.453	0.380	0.018	0.091	0.000	0.034	0.036	0.039	0.029	0.032	0.031	0.295	-0.015	0.133
Dependents	0.011	-0.211	0.453		0.160	-0.002	-0.017	-0.167	0.166	0.155	0.153	0.162	0.147	0.141	0.243	-0.111	0.124
tenure	0.005	0.017	0.380	0.160		0.008	0.242	0.038	0.035	0.047	0.047	0.034	0.029	0.031	0.672	0.006	0.340
PhoneService	-0.006	0.009	0.018	-0.002	0.008		-0.691	-0.045	0.160	0.171	0.166	0.159	0.180	0.178	0.002	0.017	-0.004
MultipleLines	0.000	0.100	0.091	-0.017	0.242	-0.691		0.258	-0.294	-0.286	-0.282	-0.293	-0.284	-0.281	0.079	0.108	0.031
InternetService	-0.009	0.230	0.000	-0.167	0.038	-0.045	0.258		-0.949	-0.934	-0.933	-0.948	-0.921	-0.921	-0.278	0.365	-0.154
OnlineSecurity	0.002	-0.201	0.034	0.166	0.035	0.160	-0.294	-0.949		0.959	0.959	0.965	0.952	0.952	0.312	-0.339	0.161
OnlineBackup	0.003	-0.179	0.036	0.155	0.047	0.171	-0.286	-0.934	0.959		0.958	0.960	0.955	0.954	0.297	-0.312	0.149
DeviceProtection	0.006	-0.180	0.039	0.153	0.047	0.166	-0.282	-0.933	0.959	0.958		0.962	0.962	0.962	0.313	-0.317	0.152
TechSupport	0.004	-0.207	0.029	0.162	0.034	0.159	-0.293	-0.948	0.965	0.960	0.962		0.957	0.957	0.324	-0.330	0.162
StreamingTV	0.004	-0.170	0.032	0.147	0.029	0.180	-0.284	-0.921	0.952	0.955	0.962	0.957		0.970	0.288	-0.289	0.123
StreamingMovies	0.004	-0.167	0.031	0.141	0.031	0.178	-0.281	-0.921	0.952	0.954	0.962	0.957	0.970		0.289	-0.293	0.125
Contract	0.000	-0.143	0.295	0.243	0.672	0.002	0.079	-0.278	0.312	0.297	0.313	0.324	0.288	0.289		-0.177	0.359
PaperlessBilling	-0.012	0.157	-0.015	-0.111	0.006	0.017	0.108	0.365	-0.339	-0.312	-0.317	-0.330	-0.289	-0.293	-0.177		-0.101
PaymentMethod	-0.005	-0.094	0.133	0.124	0.340	-0.004	0.031	-0.154	0.161	0.149	0.152	0.162	0.123	0.125	0.359	-0.101	



Focus on 5 clusters

Recommended characteristics:

- Tenure
- Partner
- Multiple lines
- Contract
- Payment method

Note: much like homework 2, this is may be a misleading statistic. When measuring telecommunication churn, internet access may be in most cases purely an indicator of use of service.

Class	gender	SeniorCitizen	Partner	Dependent	tenure	honeService	MultipleLines	InternetService	OnlineSecurity	OnlineBackup	DeviceProtect	echSupport	streamingTeaming	StreamingMov	Contract	perlessBilli	ilymentMethod
1 (Obs1709)	14.000	0.000	0.000	0.000	4.000	1.000	0.000	3.000	0.000	0.000	1.000	1.000	1.000	1.000	6.000	1.000	9.000
2 (Obs227)	13.000	0.000	1.000	1.000	31.000	1.000	0.000	3.000	1.000	0.000	1.000	1.000	1.000	1.000	7.000	1.000	10.000
3 (Obs5144)	13.000	0.000	1.000	1.000	49.000	1.000	0.000	3.000	1.000	1.000	1.000	1.000	1.000	1.000	7.000	1.000	10.000
4 (Obs3232)	13.000	0.000	0.000	0.000	15.000	1.000	0.000	3.000	1.000	1.000	1.000	1.000	1.000	1.000	6.000	0.000	10.000
5 (Obs3729)	14.000	0.000	0.000	0.000	67.000	1.000	1.000	3.000	1.000	1.000	1.000	1.000	1.000	1.000	7.000	1.000	11.000



# CONCLUSION & RECOMMENDATIONS

Telecommunications is a rapidly changing industry, with developments in technology, more millennials “cutting the cord,” and a shrinking middle class.

To remain competitive, we recommend locking customers into **a contract of at least one year**, ensuring terms are agreeable and attractive to customers, to reduce the likelihood of churn.

Other indicators of retention include **demographic factors** (couples seem less likely to churn than single people), and **extensiveness of service engagement** (a customer who has multiple phone lines is less likely to churn).

We recommend focusing on **demographic changes in needs of telecommunications companies**, as older generations may be reliable customers for the short terms, while younger generations may churn more quickly in favor of other methods of communication.

We recommend **doing additional testing on a 1 to 2 year basis** as industry trends continue to shift.