Dublin.AI: Churn Project

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Problem Identification

Customer churn is a big problem for many companies. It is **5 times** more costly to get a new customer than retain an old one.

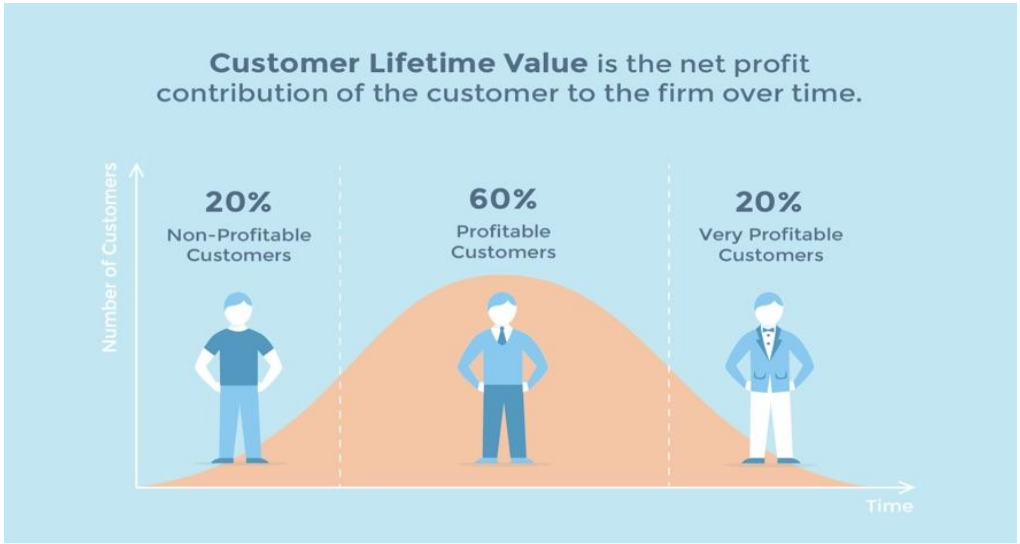
Determining which customers are more likely to churn would allow targeting via custom-tailored promotions to *increase customer satisfaction.*

Getting the Most out of Your Customers

Acquiring new customers costs money, and if they don't stay long enough you make a loss.

This can be fatal, especially for young businesses with smaller profit margin.

Long Term Customers are More Valuable



It is essential to understand what drives customers to stay.

Using AI for Real Impact

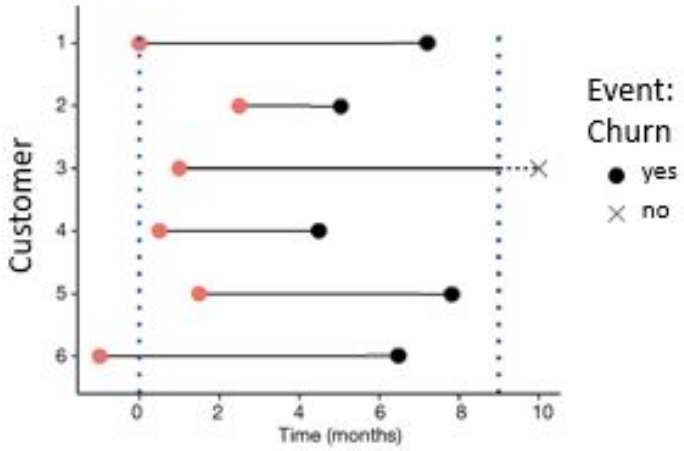
We can add real value to the business by using predictive modelling, a form of Artificial Intelligence that uses data to predict outcomes.

To address the problem we need a model that describes which customers are more likely to churn.

AI: Survival Analysis

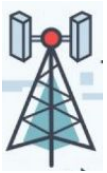
Traditionally used in medical science to analyse how long it takes before a person dies of a disease.

But it can be used to model other scenarios where the time until an event occurs is of interest: e.g. customer churn



One common survival model is the Cox Proportional Hazard model

Case study: Telco



Client: Telco company offering a variety of internet services and add-ons

Data: 7000+ customer records containing information such as monthly spend, payment method, and type of service. 1869 of these customers have churned

Goal: Leverage this information for predictive modelling of customer churn

customerID	Tenure	PhoneService	InternetService	OnlineSecurity
7590-VHVEG	1	No	DSL	No
5575-GNVDE	34	Yes	DSL	Yes
3668-QPYBK	2	Yes	DSL	Yes
7795-CFOCW	45	No	DSL	Yes
9237-HQITU	2	Yes	Fiber optic	No
9305-CDSKC	8	Yes	Fiber optic	No
1452-KIOVK	22	Yes	Fiber optic	No
6713-OKOMC	10	No	DSL	Yes
7892-POOKP	28	Yes	Fiber optic	No
6388-TABGU	62	Yes	DSL	Yes
9763-GRSKD	13	Yes	DSL	Yes
7469-LKBCI	16	Yes	No	No internet serv
8091-TTVAX	58	Yes	Fiber optic	No
0280-XJGEX	49	Yes	Fiber optic	No
5129-JLPIS	25	Yes	Fiber optic	Yes

Solution: Model Predictions

The Cox Proportional Hazard model was fit and optimised on all data. A concordance of .929 out of 1 was obtained - this signifies a good fit!

Questions it can answer:

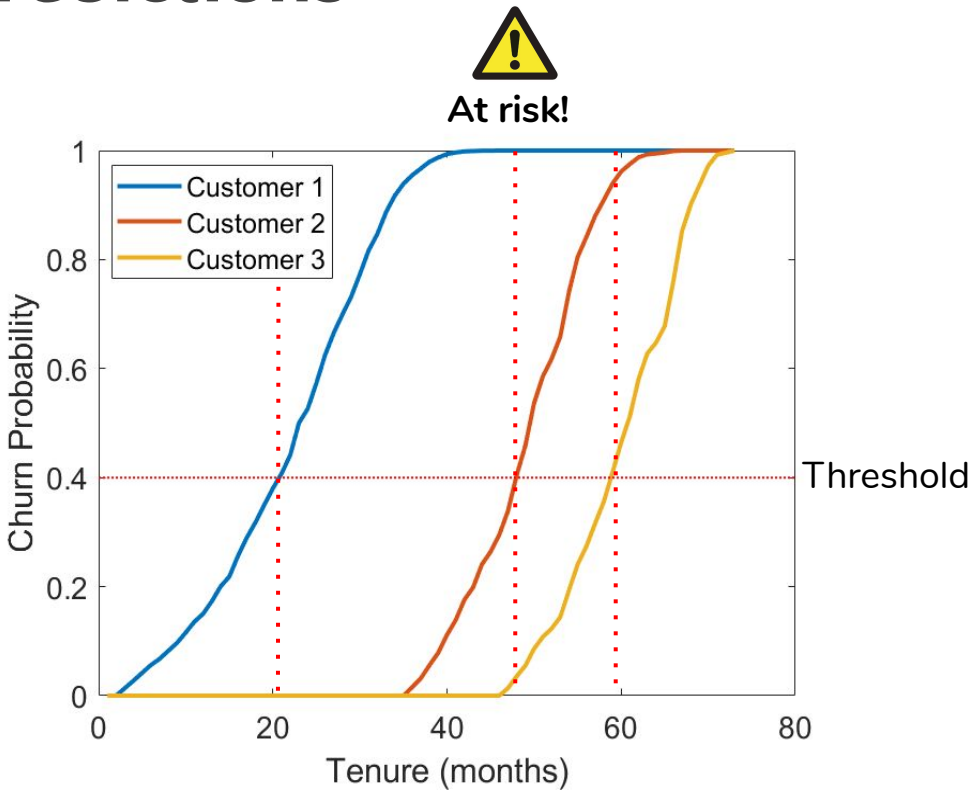
i. When is Customer X likely to churn?

ii. What are the significant factors that drive churn?

Solution: Model Predictions

Individual churn likelihood curves as a function of tenure time for 3 customers

Threshold can be set such that the company is alerted when the customer's risk of churning exceeds this threshold

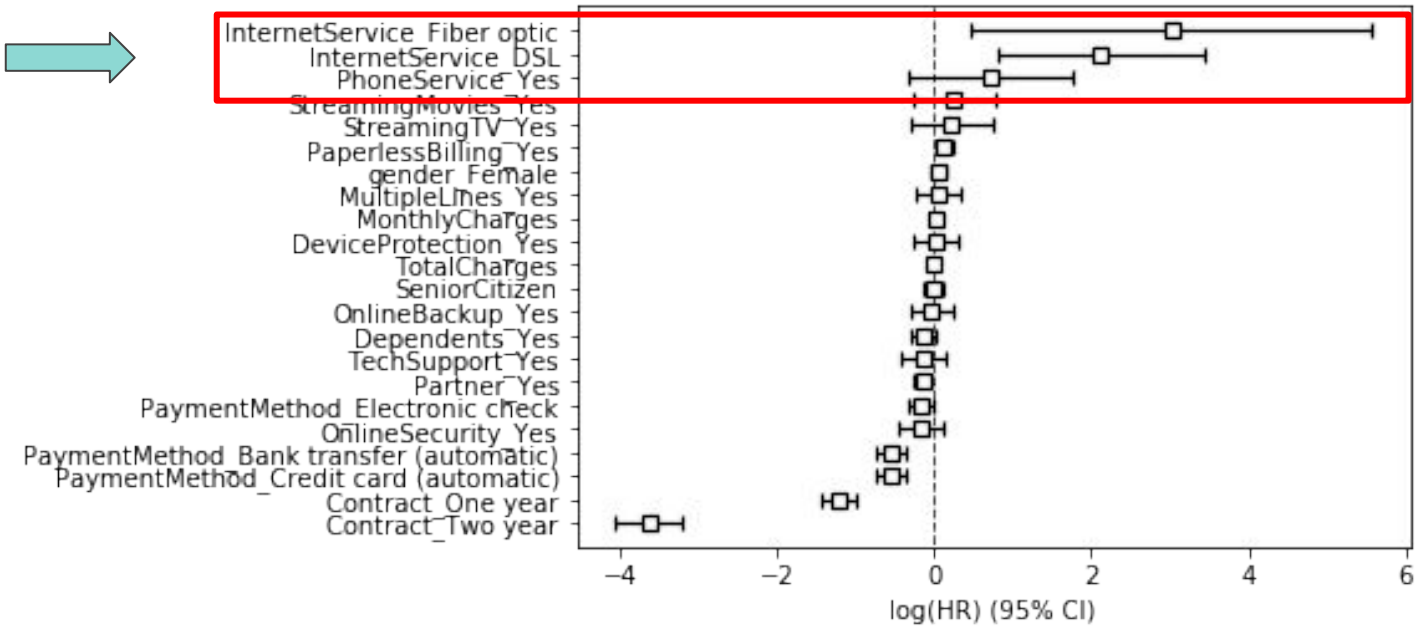


Influencing Factors

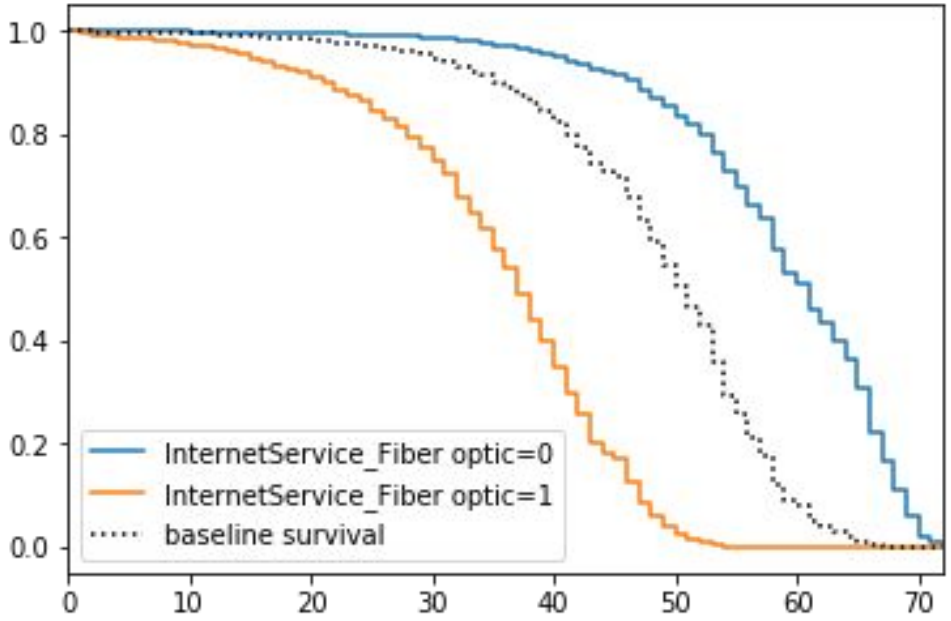
Understanding the profile of customers who churn can guide longer-term marketing and customer service strategic direction

1) Connection Type
2) Payment Method
3) Contract Length
4) Cost

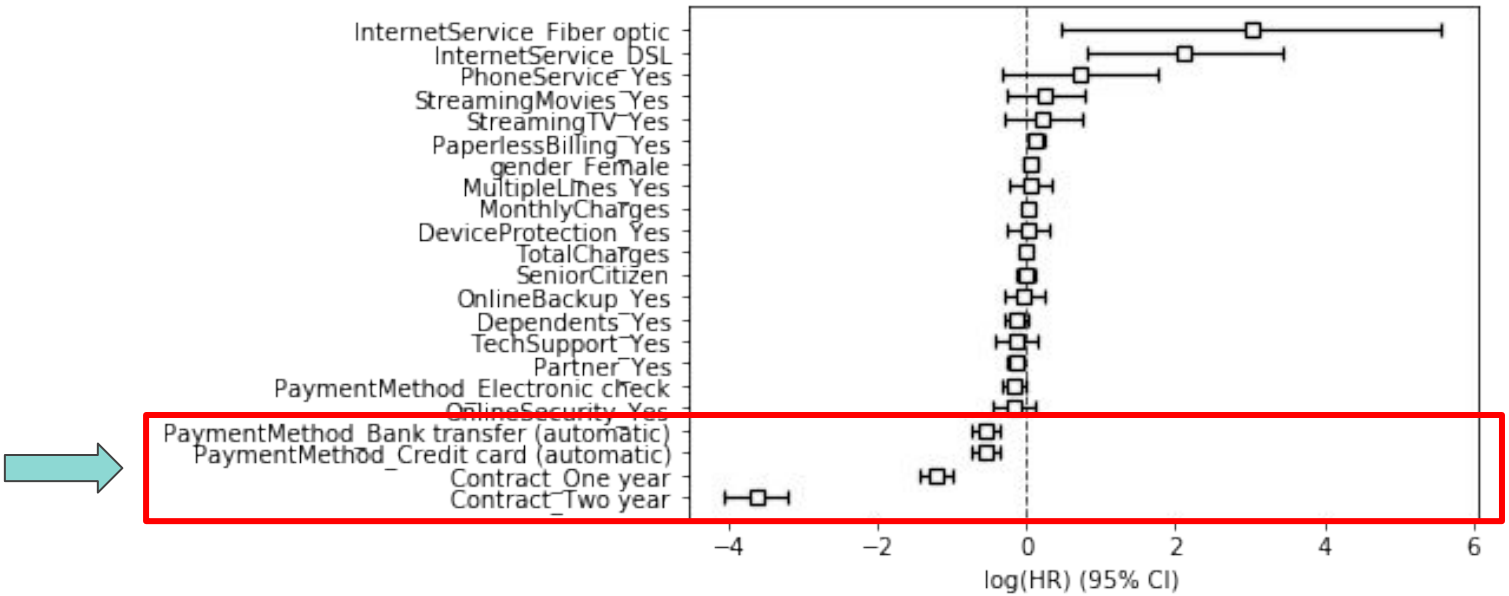
Influencing factors: Connection type



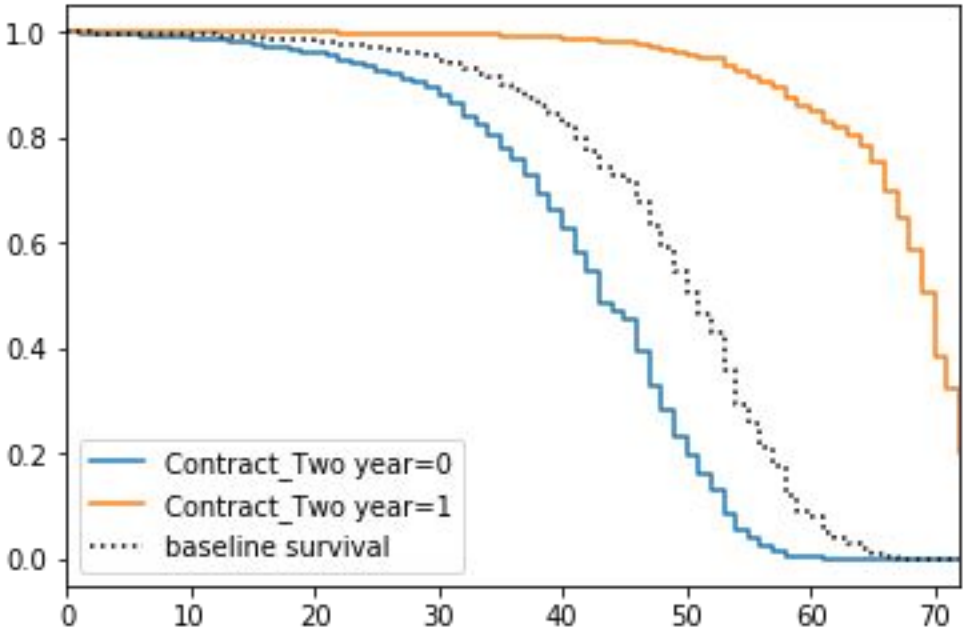
Influencing factors: Connection Type



Influencing factors: Payment method



Influencing factors: Contract length



Influencing factors: Cost

Average of MonthlyCharges	NOT Churn	Churn	Overall
1_Yr	€ 62.51	€ 85.05	€ 65.05
2_yr	€ 60.01	€ 86.78	€ 60.77
M2M	€ 61.46	€ 73.02	€ 66.40
Grand Total	€ 61.27	€ 74.44	€ 64.76

Average of TotalCharges	NOT Churn	Churn	Overall
1_Yr	€ 2,901.35	€ 4,066.21	€ 3,032.62
2_yr	€ 3,656.65	€ 5,432.36	€ 3,706.93
M2M	€ 1,521.93	€ 1,164.46	€ 1,369.25
Grand Total	€ 2,549.91	€ 1,531.80	€ 2,279.73

Recommendations

Use model predictions to strategically offer customers likely to churn promotional offers (price is an indicator of churn).

Focus on signing people to long term contracts - incentivise these.

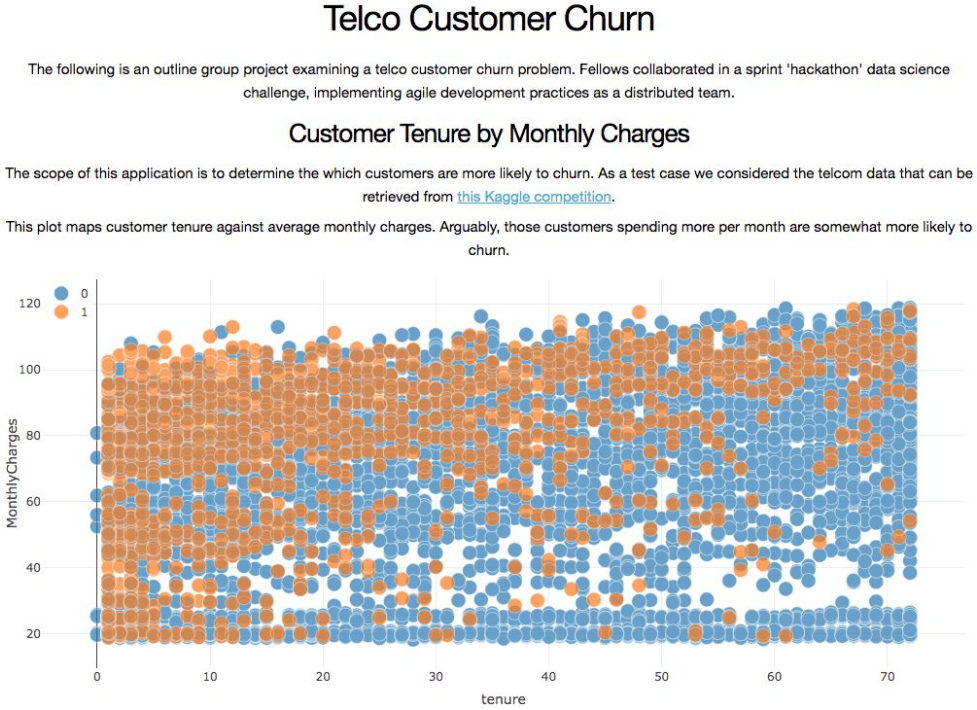
Further investigation of data for provide insight into customer base.

Visualisation/Customisation

All findings can be visualised as required

Tailored to specific requests if necessary

Regular data updates



Thank You