

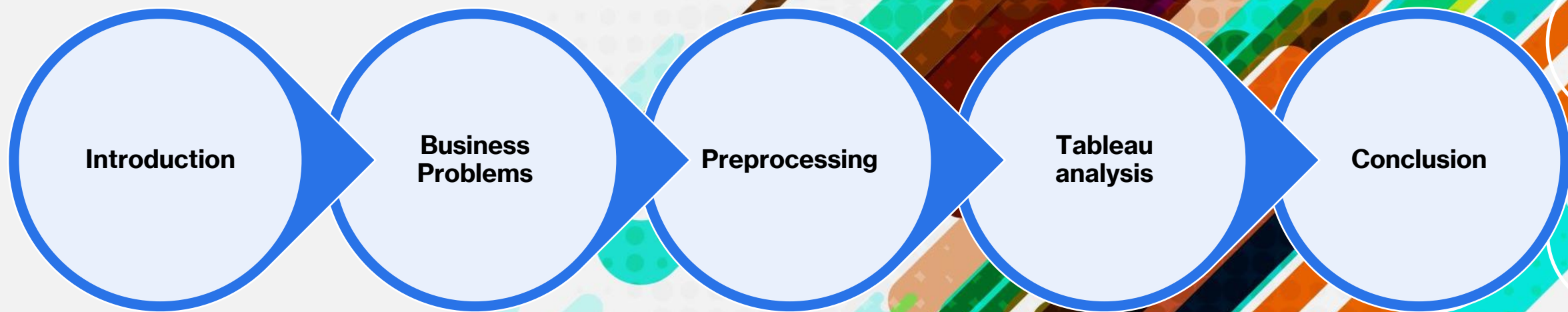


Customer Churn Analysis

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Contents





Customer Churn Analysis

A certain bank in North America, the credit card business of the bank is not performing very well.

OBJECTIVE:

Analyse the factor affecting the customer attrition.

Business problems

Task 1. Display the percentage of the attrited and the existing customers from the data.

Task 2. Display gender-wise percentage of the attrited and the existing customers

Task 3: Display region-wise percentage of the attrited and the existing customers.

Task 4: Display the percentage of the attrited and the existing customers for each card category

Task 5: Display the percentage of the attrited and the existing customers for each income category.

Task 6: Display region-wise count of customers. Identify the region that has the maximum number of customers.

Task 7: Design the dashboard with the charts created in tasks 1-6. Apply action filters on the charts created in tasks 1 and 6.

Preprocessing data

MISSING VALUES

```
1 data.isnull().sum()
```

| client_id | attrition_flag | customer_age | gender | dependent_count | education_level | credit_limit | months_on_book | average_open_to_buy | total_trans_amt | total_trans_ct |
|-----------|----------------|--------------|--------|-----------------|-----------------|--------------|----------------|---------------------|-----------------|----------------|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

1 data.to_csv('BankChurn_Data_Preprocessed.csv')

There are 20 columns: 7 categorical and 13 numerical

1. Dependent Count
2. Months on book
3. Credit Limit
4. Average Open to Buy
5. Total trans Amt
6. Total trans ct

1. Card_category has 132 null values and is of object data type. So, it will be replaced with the Mode value
2. Credit Limit has 60 null values and is of numerical datatype. So, it will be replaced with the Mode

TABLEAU

5 Display the percentage of the attrited and the existing customers for each income category.

6 Display region-wise count of customers. Identify the region that has the maximum number of customers.

- Income group of earning less than \$40 k are most attrited
- Those earning \$120 + have less attrition
- England has the most number of customers
- Northern Ireland has least number of customers

Dashboard (Task 7)

[Link to dashboard](#)

Preprocessing data

- Display the summary statistics of the dataset
- Identify the outliers in the dataset (if there any)
- Identify the missing values in the dataset and display the missing values
- Perform data imputation

MISSING VALUES

```
1 data.isnull().sum()
```

```
CLIENTNUM      0
Attrition_Flag  0
Customer_Age    0
Gender          0
Dependent_count 0
Education_Level 0
Marital_Status  0
Income_Category 0
```

```
1 data.to_csv('BankChurn_Data_Preprocessed.csv')
```

```
1 # Card_category
2 data.Card_Category.fillna(data.Card_Category.mode()[0],inplace=True)
3 # Credit_Limit
4 data.Credit_Limit.fillna(np.round(data.Credit_Limit.mean(),1),inplace=True)
```

There are 20 columns: 7 categorical and 13 numerical

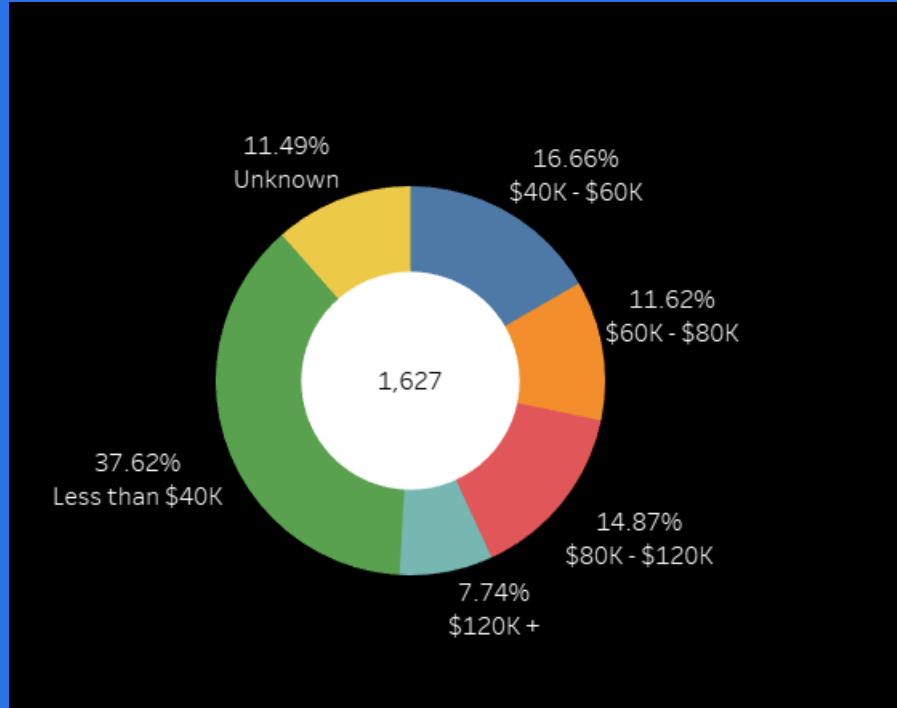
1. Dependent Count
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TABLEAU

5

Display the percentage of the attrited and the existing customers for each income category.

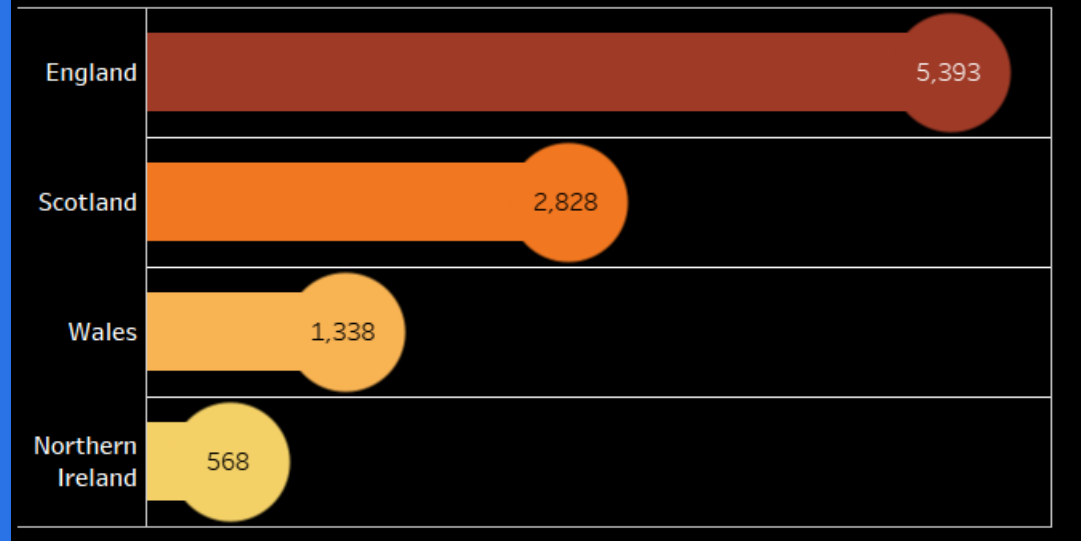


- Income group of earning less than \$40 k are most attrited
- Those earning \$120 + have less attrition

6

Display region-wise count of customers. Identify the region that has the maximum number of customers.

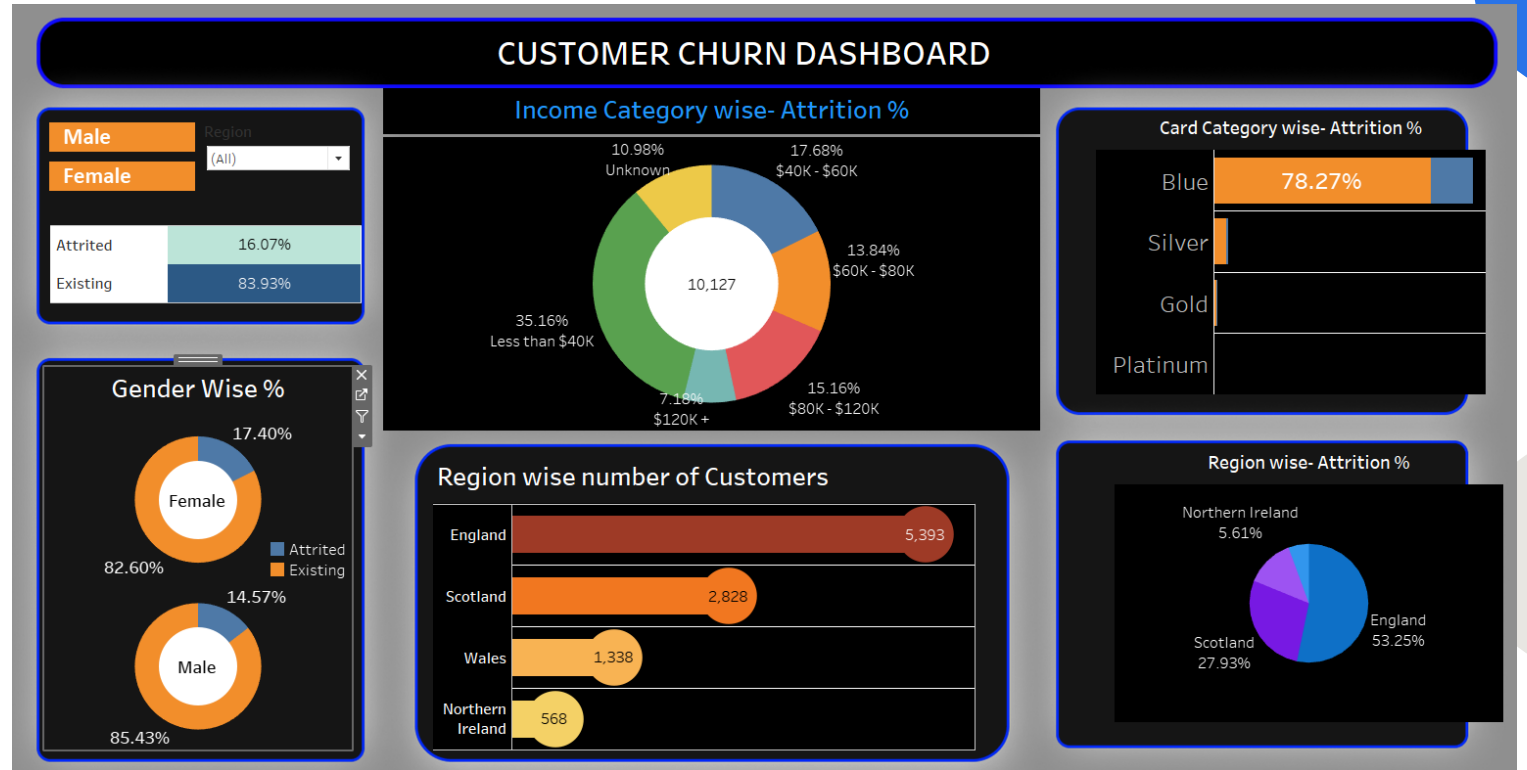
Region wise number of Customers



- England has the most number of customers
- Northern Ireland has least number of customers

Dashboard (Task 7)

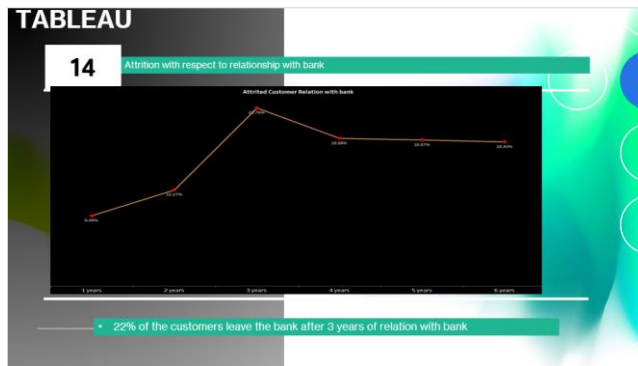
[Link to dashboard](#)





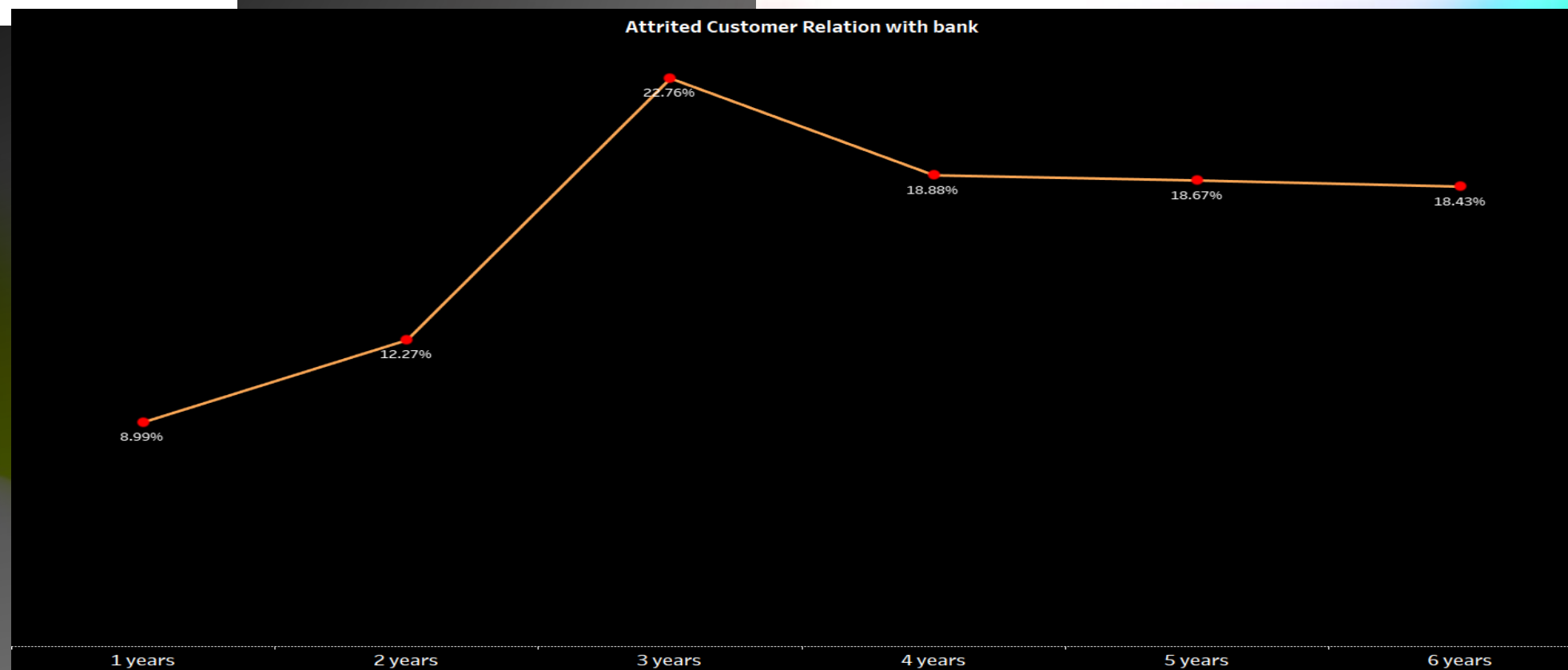
TASK 8

1. Analyze the age of the customers.
2. Count of attrited and existing customer in each income category.
3. Relation between loan amount and number of transaction.
4. Education qualification wise Gender count.
5. Gender wise region wise count of customers
6. Marital status and number of customers in each status
7. After how many years the customers get attrited?



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Attrition with respect to relationship with bank

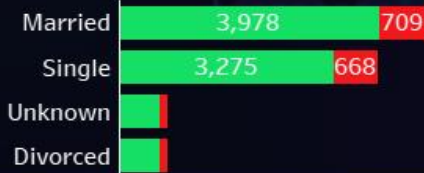


- 22% of the customers leave the bank after 3 years of relation with bank

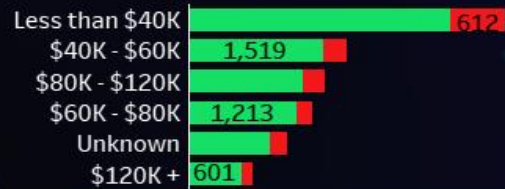
CUSTOMER CHURN DASHBOARD

■ Attrited ■ Existing

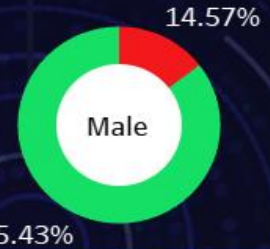
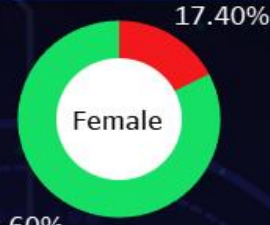
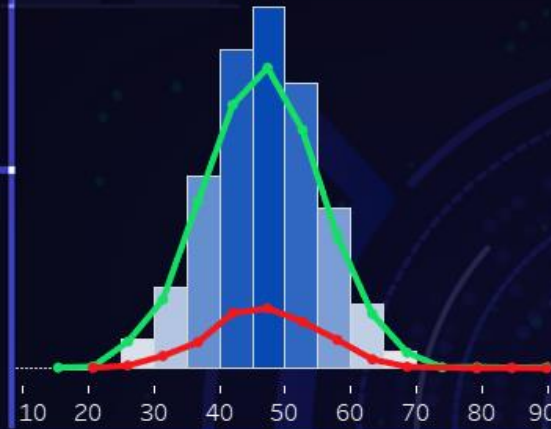
Marital Status



Income category



Age Distribution



England

Northern Ireland

Scotland

Wales

Gender

(All)

Attrition Flag

(All)

Existing 8,500

Attrition 1,627

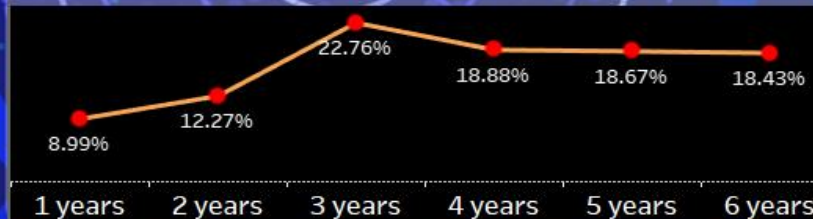
Attrition Rate 16.1%

Mean Age 46.38

Region wise Gender Count

| | | | |
|----------------------------|--------------------------|-----------------------------|------------------------|
| England Female 2,829 | England Male 2,564 | Scotland Female 1,520 | Wales Female 704 |
| | | Scotland Male 1,308 | Wales Male 634 |

Attrited Customer Relation with bank



Card Category



Education qualification

| | | | |
|---------------|--------|-------|-----|
| Graduate | Female | 1,372 | 294 |
| | Male | 1,269 | |
| High School | Female | 852 | |
| | Male | 855 | |
| Unknown | Female | 664 | |
| | Male | 599 | |
| Uneducated | Female | 667 | |
| | Male | 583 | |
| College | Female | 456 | |
| | Male | 403 | |
| Doctorate | Female | | |
| | Male | | |
| Post-Graduate | Female | 220 | |
| | Male | | |

Final Dashboard

[Link to dashboard](#)

Conclusion

1. England and Wales has attrition above 16%
2. Platinum card has less customers but still has the most attrition (25%)
3. Most of the customer use the blue and gold credit card category.
4. The attrition in gold card category is 22% from the second years onwards.
5. The highest income range is 40k - 60k in Females.
6. The highest income range is 80k-120k in Males
7. The attrition in Females (17.4%) is more than males (14.6%)
8. In northern Ireland the attrition in female is higher in the 5th year and is highest in 3rd year in all the other region
9. Attrition is less in Doctorate and Post Graduate qualification
10. Females taking Platinum card are more likely for attrition

The background is a dark, abstract composition. It features a grid of small, glowing blue and green dots, resembling a digital or data visualization. Overlaid on this are several out-of-focus, circular bokeh lights in shades of orange, yellow, and blue. In the upper right corner, there are several white-outlined circles of varying sizes, some of which are partially filled with a solid blue color. The overall aesthetic is high-tech and modern.

Thank you

Customer Churn Analysis