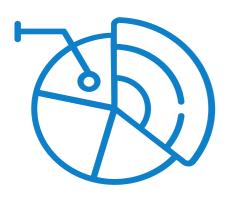


# CUSTOMER LIFETIME VALUE:

PREDICTIONS & SEGMENTATION

RACHEL KESSLER

## UNDERSTANDING THE PROBLEM



Many organizations rely on less than 20% of their customers to generate over 80% of their revenue



On average, it's 5 times more costly to acquire new customers than it is to maintain existing

# THE OBJECTIVE: Find and maintain the top customers

# THE OUTCOMES

O1
SALES STRATEGY

Supervised Classification
Model to Use Sales Lead
Data to Predict and Target
Top Customers by Annual
Revenue

**O2**MARKETING STRATEGY

Unsupervised Clustering

Model to Develop

Segmented Marketing

Strategy with Cluster

Characteristics

# THE APPROACH

# DATA & REQUIREMENTS GATHERING

- Develop project plan with management
- Obtained 10-yr sales data from local manufacturer

### FEATURE ENGINEERING

- Created customer demographics (Location, Size, Industry)
- Extracted customer transaction history

# DATA CLEANING & EXPLORATION

- Merged and cleaned datasets
- Examined relationship between revenue/frequency/recency and features

# MODEL TRAINING & OPTIMIZATION

- Model selection using ROC-AUC curves
- Hyperparameter optimization with cross validation
- Scoring on precision & ROC-AUC

**MODEL TESTING** 

# CUSTOMER VALUE PREDICTIONS

FEATURE ANALYSIS

### **HIGH VALUE CUSTOMERS**

### **Products**

**FABRIC** 

VINYL

### Location

**SURREY** 

RICHMOND

### Industry

FOOD

RETAIL

### **LOW VALUE CUSTOMERS**

### **Products**

**BANNERS** 

LAMINATES

### Location

SQUAMISH

ISLAND

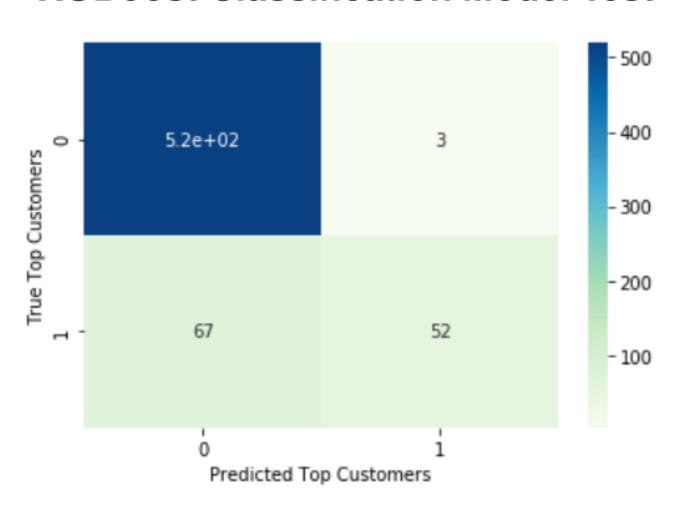
### Industry

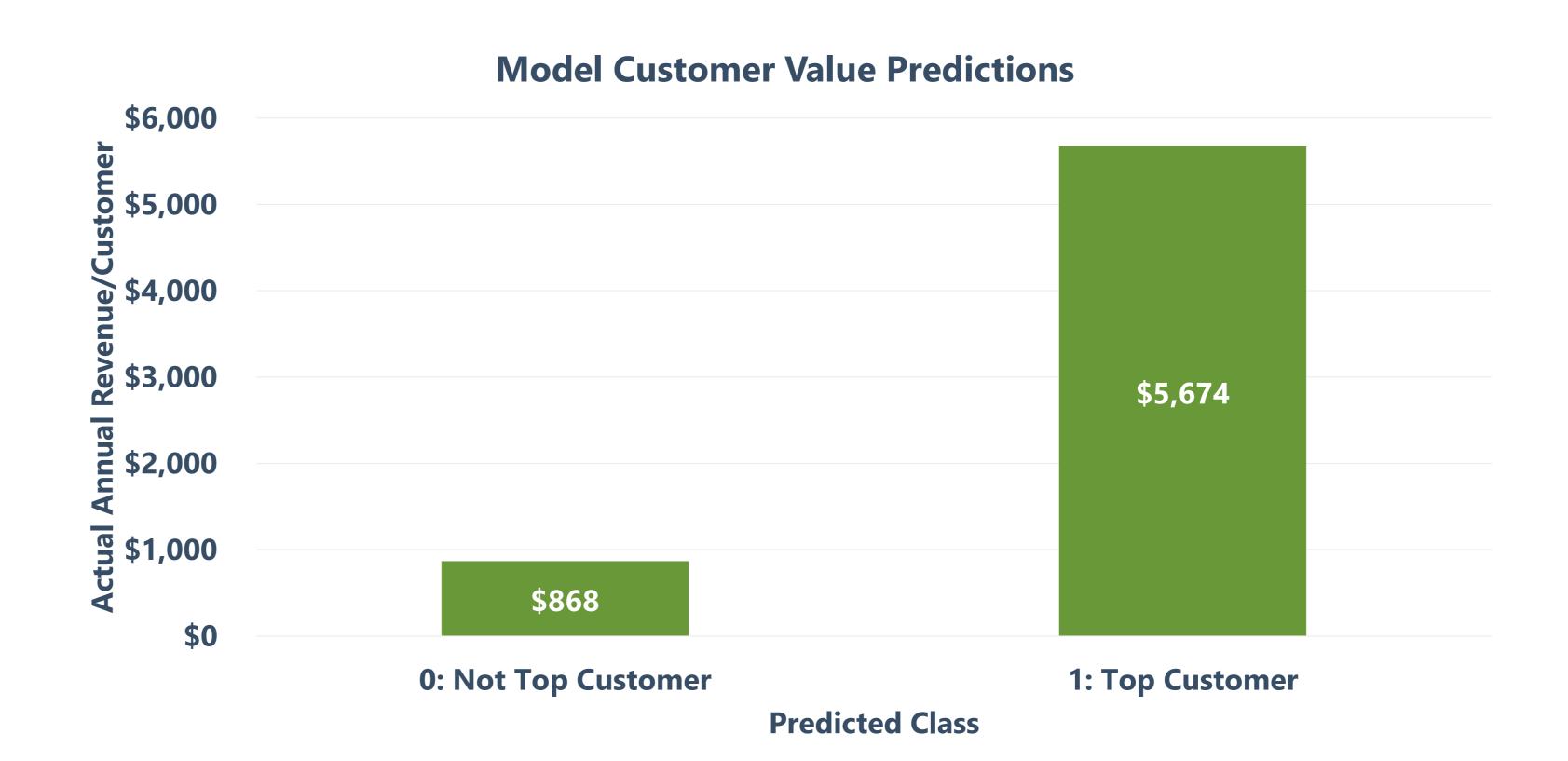
MANUFACTURING & DISTRIBUTION LOGGING & MINING

# CUSTOMER VALUE PREDICTIONS

SUPERVISED MODEL RESULTS

### **XGBoost Classification Model Test**

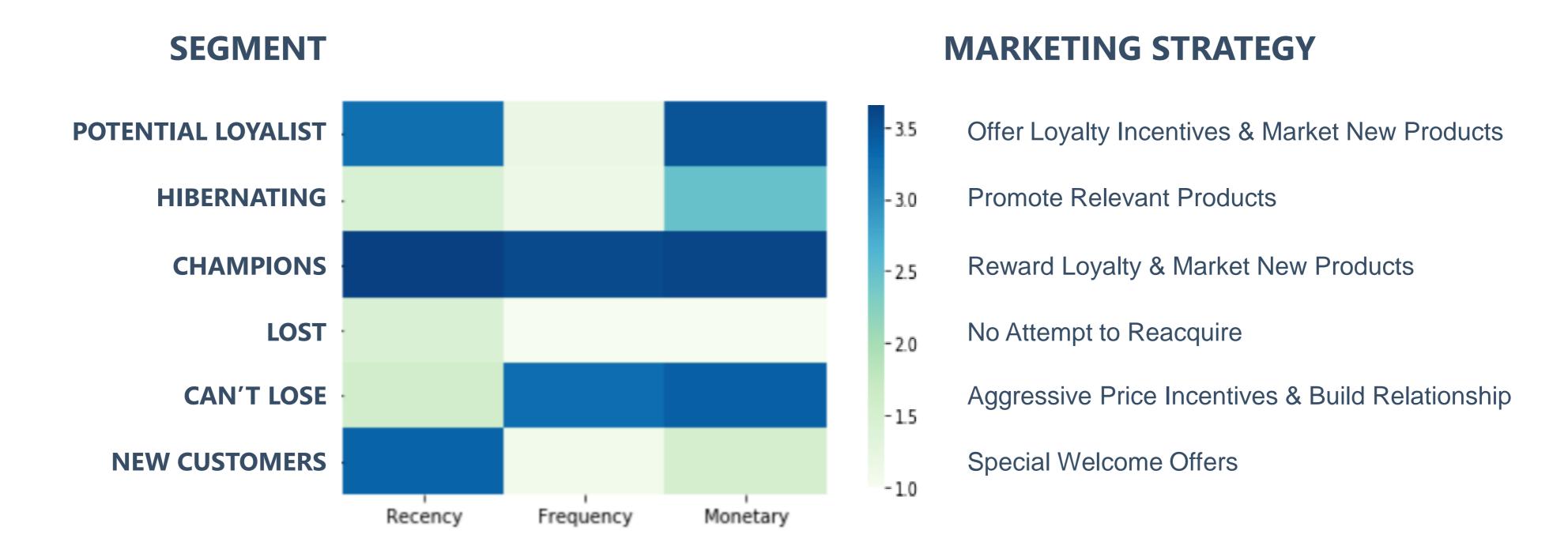




# CUSTOMER CLUSTERING

MARKETING STRATEGY

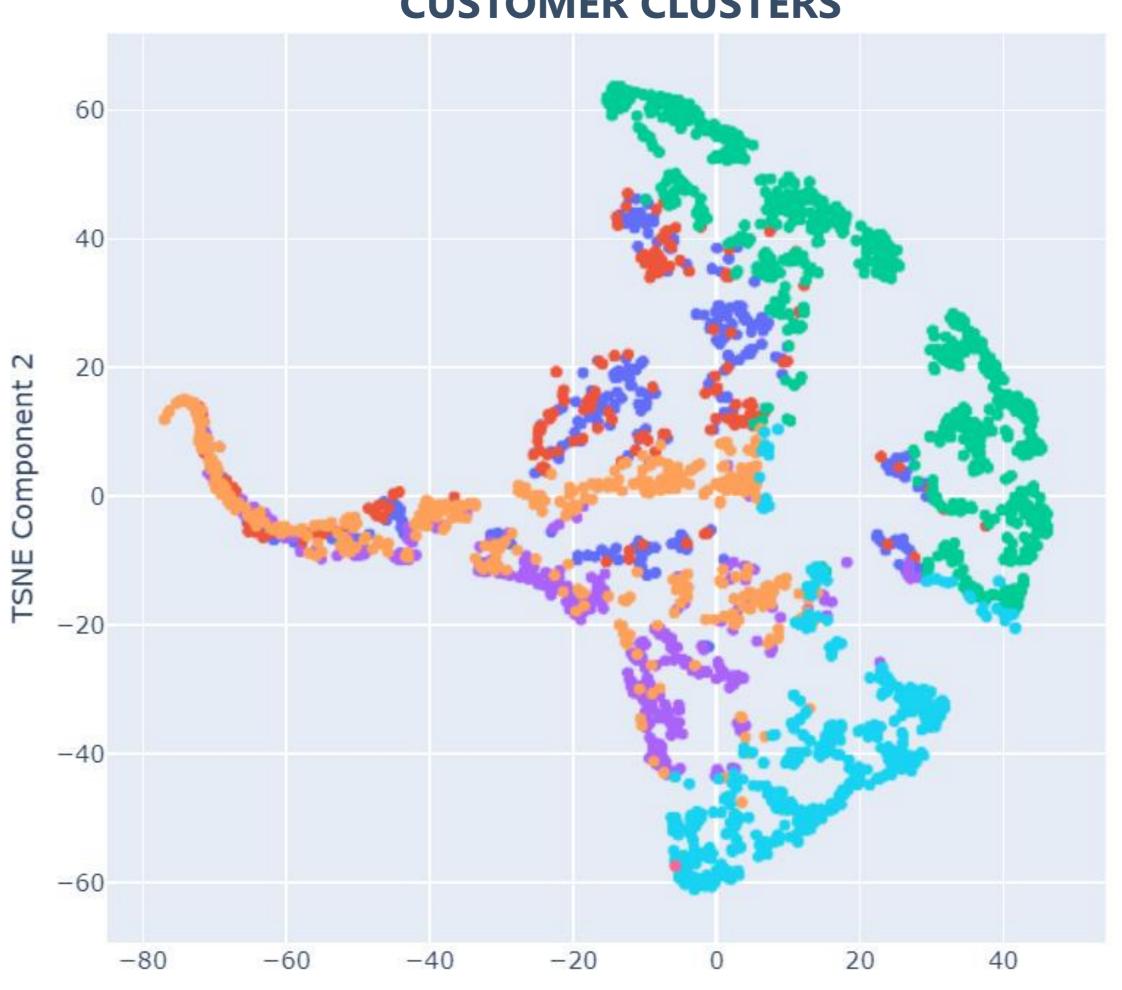
### K MEANS CLUSTERING RESULTS



# CUSTOMER CLUSTERING

VISUALIZING RESULTS

### **CUSTOMER CLUSTERS**



- Customer Group=High Value/One Time/Churned
- Customer Group=High Value/Regular/Churned
- Customer Group=Low Value/One Time/Churned
- Customer Group=High Value/One Time/Current

Customer Group=Low Value/One Time/Current

Customer Group=High Value/Regular/Current

TSNE Component 1

# CUSTOMER CLUSTER SEGMENTS

CHURN ANALYSIS



### TOP CURRENT CUSTOMERS:

**ABOUT:** AVG 28 JOBS,ORDERED WITHIN LAST YEAR

**INDUSTRIES:** LOGGING/MINING, AUTOMOTIVE, PROFESSIONAL SERVICES

**REGIONS:** ALBERTA, NORTH BC, LOWER MAINLAND, SQUAMISH

PRODUCTS: METAL, BANNER, VINYL, FABRICS, TENTS



### TOP CHURNED CUSTOMERS:

**ABOUT:** AVG 11 JOBS, LARGE, ORDERED 5 YEARS AGO

**INDUSTRIES**: RETAIL, HOME IMPROVEMENT, REAL ESTATE, FOOD

**REGIONS**: SURREY, PRAIRIES, US, ISLAND

**PRODUCTS**: COROPLAST, AWNING FABRIC, FRAMES, WINDOW GRAPHICS





Data Science

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