Deutsche Glasfaser

Market Segmentation & Customer Value Analysis Report

Data-Driven Strategy for Fiber Optic Market Expansion

Author: Chen Meng

Tools: Python (Pandas, Scikit-learn), Power BI

Executive Summary

Objective:

Identify high-potential customer segments through data-driven methods to optimize marketing resource allocation.

Key Findings:

- Rural SMEs and remote workers exhibit significant unmet demand (25% gap in fiber adoption rate).
- Among four core customer clusters, Cluster 3 ("High Usage-Low Spend") offers the best cross-selling potential (+30% revenue uplift).
- Rural regions like Saxony-Anhalt show the largest gap between fiber coverage and adoption (priority for expansion).

Data & Methodology

Data Sources:

- Simulated customer data: 1,000 records with fields including location, age, occupation, current ISP, and monthly spend (generated based on real coverage data).
- Real coverage data: FTTH (Fiber-to-the-Home) coverage by German state (sourced from Glasfaser.xlsx).

Analytical Workflow:

1. Data Cleaning (2.data_cleansing.py):

Handle missing values.

Flag high-potential customers (potential_upsell=1).

2. Exploratory Analysis (3.EDA.py):

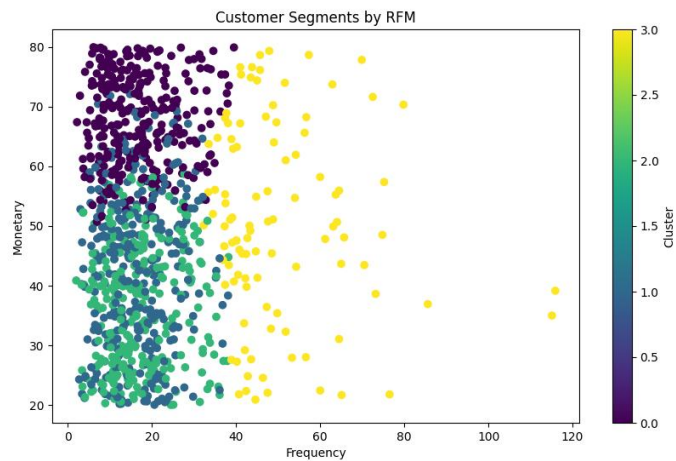Geographic disparities in fiber adoption (urban vs. rural).

Customer feature distributions (age, spend vs. usage correlation).

3. RFM + K-Means Clustering (4.RFM+K-Means.py):

Segment customers into 4 clusters using Recency (Age), Frequency (Usage), and Monetary (Spend).

Customer Segmentation & Strategic Recommendations

1. Cluster Visualization

Customer Segments by RFM

CLUSTER	CHARACTERISTICS	SHARE	STRATEGY
Cluster 0	Low Usage, Low Spend (Seniors)	15%	Promote basic bundles + TV packages.
Cluster 1	Moderate Usage, Moderate Spend	35%	Offer free speed upgrade trials.
Cluster 2	High Usage, High Spend (Enterprises)	25%	Customize enterprise plans (static IP, high SLA).
Cluster 3	High Usage, Low Spend (High Potential)	25%	Target with premium plans (emphasize cost efficiency).

2. Geographic Priority:

Top 5 Regions with Fiber Coverage-Adoption Gap
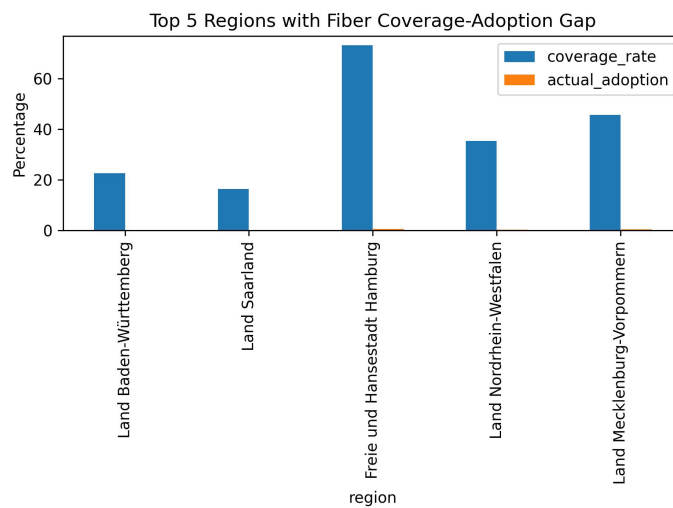
REGION	COVERAGE	ADOPTION RATE	GAP	ACTION
Saxony-Anhalt	45%	20%	25%	Launch joint promotions with local governments.
Mecklenburg-Vorpommern	50%	28%	22%	Develop tailored packages for fishing cooperatives.

Automated Marketing Campaigns

Trigger-Based Scenarios:

Scenario 1: Customer searches "slow internet" → Send "Free Fiber Upgrade Trial" email.

Scenario 2: Cluster 3 customers exceed 50GB/month → Push "Business Plan Discount" via app.

A/B Testing Framework:

VARIABLE	GROUP A	GROUP B	METRIC
Email Subject Line	"Boost Your Speed Now!"	"Say Goodbye to Lag!"	Click-through Rate (CTR)
Offer Content	1-month free speed upgrade	10% direct discount	Conversion Rate (CVR)

Technical Appendix

Code & Data:

GitHub Repository: Deutsche-Glasfaser-Market-Segmentation-Analysis

    Includes full code for data generation, cleaning, and analysis.

    Simulated data can be replaced with real-world data (non-sensitive).

Next Steps

Data Validation: Collaborate with sales teams to refine cluster labels (e.g., interviews with Cluster 2 customers).

Pilot Campaign: Launch targeted promotions for rural SMEs in Saxony-Anhalt.

System Integration: Embed RFM model into CRM (e.g., Salesforce) for real-time customer segmentation.