Business Analytics Case Studies with Customer Focus

Dr. Onur Ulgen – President, Advanced Business Analytics (ABA)

www.advancedba.com/
Agenda

- What is Data Analytics
- Analytics Initiatives
- ABA Team
- Key Takeaways
Business Decisions Support Pyramid

What will Happen Next?
- Who are my customers?
- What vehicles (parts) are being sold and where?

Why is it Happening?
- What drives customer experience?
- How does it impact behavior?

What is Happening?
- Who is likely to be in market?
- What vehicles will they buy?
- At what price and incentives should I sell vehicles?
- What is the optimal use of our marketing spend?

What is Best?
- Who are my customers?
- What vehicles (parts) are being sold and where?
ABA Portfolio of Analytics Tools

Descriptive Modeling
- Segmentation
- Response Analysis
- Comparative Analysis
- Attitudinal Analysis
- Competitive Market Insights
- Loyalty
- KPI

Predictive Modeling
- Decision Trees
- Linear Regression
- Logistic Regression
- Forecasting
- Neural Networks
- In-market
- Retention

Prescriptive Modeling
- Optimization
- Simulation
- Design of Experiments
- Decision Analysis
Example of a Descriptive Model???

CANDY: Can my boyfriend come along?

I'M NOT YOUR BOYFRIEND! You totally are. I'm casually dating a number of people.

BUT YOU SPEND TWICE AS MUCH TIME WITH ME AS WITH ANYONE ELSE. I'M A CLEAR OUTLIER.

YOUR MATH IS IRREFUTABLE. Face it—I'm your statistically significant other.
Example of a Predictive Model???

As you can see, by late next month you'll have over four dozen husbands. Better get a bulk rate on wedding cake.
Business Analytics and Data Mining

Methodology for Predictive Analytics:

1. Aggregate and cleanse the data, which may come from different systems in different formats, and which may contain anomalies

2. Divide the data into an in-sample group to develop the predictive model and out-of-sample group that will be used to test the model

3. Data Mining – identify underlying trends, patterns, or relationships that are most relevant to predictive model development.

4. Model Development – segmentation and model selection (statistical, simulation, …)

5. Model Validation – apply the model to out-of-sample group to validate it

6. Prepare the system for the model usage in the production environment (Data update, model update, end-user training, …)
Agenda

- What is Data Analytics
- Analytics Initiatives
- ABA Team
- Key Takeaways
Customer Focused Predictive Analytics

**Customer Lifetime Value**
- Identify the most valuable customers/households based on previous ownership history
- **Business Benefit:** Provide predictive insight into customers and future buying behavior

**Customer Experience Indicator**
- Measure customers/households experiences with products and services
- **Business Benefit:** Actionable view to manage customer experience and cost

**In Segment**
- Identify customers who are most likely to buy in the next year and in which segment
- **Business Benefit:** Target marketing campaigns
In-Segment Model

Target variable: The probability of a household that is a known customer of the brand purchasing another vehicle within same brand during the next twelve months.

- Predictor variables may identify whether the household is approaching peak of its buying cycle.
- Households tend to buy vehicles in a rhythm, and the model identified peaks and valleys of each household’s rhythm.
- In the example below, Household A is relatively unlikely to purchase in 2015, but Household B is relatively likely.
Segment Group Priority Summary

- **Fence-sitters (X1%)**: Spending less because they may already be gone
- **ABC-obsessed (X2%)**: Spending less because predicted to need less to tip the scale
- **Loyalist (X3%)**: Spending the most because more likely to need the most convincing
- **Truckers (X4%)**: Spending less because predicted to need less to tip the scale
- **Car Guys (X5%)**: Spending the most because more likely to need the most convincing
- **New to ABC (X6%)**: Spending the most because more likely to need the most convincing

Head

-$//head$

-$//head$
Customer Lifetime Value (CLV) Model

Target variable: The approximate dollar value of a household to sales over an extended period of time.

Predictor variables: Household’s approximate historic spend, added to predicted spend on new vehicles over the next 12 months.

In the example below, even though Household B may be more likely to purchase in the very near term, Household A has the higher CLV overall.
Customer Experience Indicator (CEI) Model

When a vehicle purchaser opens a case or a warranty claim with the brand’s customer contact center, this initiates a pre-defined process.

By the end of the process, the most customers are highly satisfied or mostly satisfied. However, a small minority of customers may be very unsatisfied. The CEI model identifies those that are most likely to fall in the latter category, so that the customer contact center can take additional proactive measures.
Quick Hit Initiative #1: Assessing Customer Satisfaction

**Summary:** Assess both internal and external data to determine phases of customer satisfaction

**Base Models:**

- **Ownership Model**
- **Retention Model**

**Key Realization:** 80% of the calls originated from 15% of the customers analyzed

**Potential Business Applicability:**

- Take business actions on a customer before reaching a “lost cause” state of dissatisfaction
- Improving brand and customer long term relationship
Quick Hit Initiative #2: Optimizing Goodwill

Data Driving Business:
- Immediate application: Good-will decisions for customer action in Customer Care Center
- Additional future applications are proactive customer outreach, use in the Field, Dealerships, etc.

Customer: John Doe
Lifetime Value: 1.0
Risk: 2.3
Business Action: $X00.00
Agenda

- What is Data Analytics
- Analytics Initiatives
- ABA Team
- Key Takeaways
ABA Team and Use Cases

- New Customer Acquisition
- Optimization of part distribution locations and transportation mediums
- Identify insurance claims that are potentially fraudulent
- Develop predictive models that identify potential new insurance sales
- Develop a method to predict call volumes for a large security based call center
- Increase Service Level and Minimize Shortages, etc.

Contact: oulgen@advancedba.com
www.AdvancedBA.com
Agenda

What is Data Analytics
Analytics Initiatives
ABA Team
Key Takeaways
Key Takeaways

- Requires skillset in all layers of “Data Management and Analytics”
- Creating core models and sharing them across lines of business will measurably improve operations
- “Quick Hit” initiatives have given confidence to the approach
- Business change (behaviors, methods, vendors) will be the biggest challenge to realizing the benefits of data
- Investments for data initiatives can be incremental or realized from value created (i.e. self-funded)

“The use of data will become a key basis of competition and growth… all companies need to take data seriously.” McKinsey Global Insights