



# **Data Analysis *@*Blackwell**

# The Team

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# AGENDA

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- ① Introduction: Growth Opportunities
- ② Identifying Strategic Partner
- ③ Maximizing Portfolio Profitability
- ④ Growth By Acquisition
- ⑤ Conclusions

# Growth Opportunities

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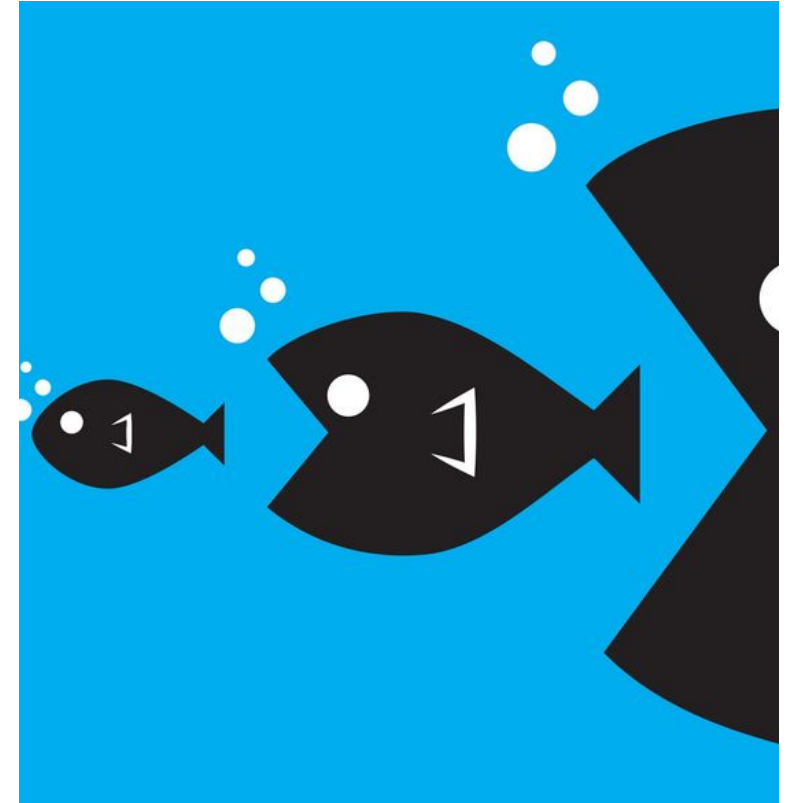
## Identifying the Strategic Partner

Asus or Sony



## Maximizing Portfolio Profitability

Sales boosting product characteristics



## Growth by Acquisition

Up-selling, cross-selling, accessories,  
warranties

# Identifying Strategic PC Partner

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Problems, Goals & Methodology



## Business Goal

Select strategic manufacturing partner for PCs based on Customer Brand Preference.



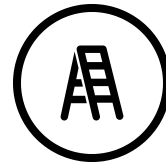
## Problem

5000 responses of the 14898 survey responses are missing (Brand Preference).



## Analysis Goal

Model missing brand preference based on complete survey data.

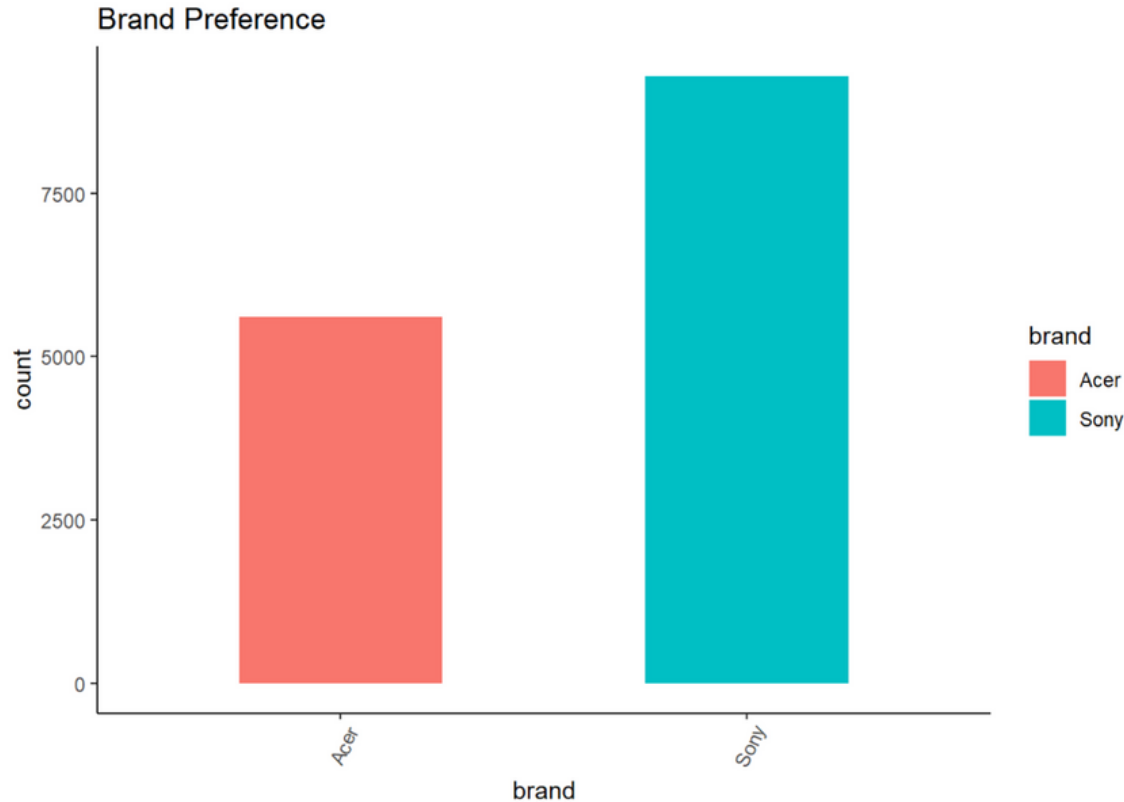


## Methodology

1. **Understand** what drives brand preference.
2. **Apply** multiple models using Caret package to find best fit for the problem.
3. **Predict** missing brand preference for **5000** respondents.
4. **Recommend** strategic partner (**Sony** or **Acer**).

# Identifying Strategic PC Partner

## Key Findings & Recommendations



- **Key findings**

- **62% of customers prefer SONY.**
- Age and salary are main drivers of brand preference.
- Models provided similar results which adds confidence in final outcome.
- Brand preference for 5000 followed the pattern of the complete survey.

- **Recommendations**

- **Build a strategic partnership with SONY.**
- Research other customers segments for their respective brand preference.

# Maximizing Portfolio Profitability

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## Problems, Goals & Methodology



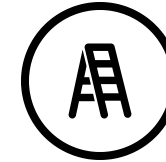
### Business Goal

Maximizing Blackwell profitability.



### Analysis Goal

- Predict future sales for product categories: PCs, Laptops, Smartphones and Netbooks. □□
- Assess importance of characteristics: Positive Service Review and Negative Service Review. □□



### Methodology

- Which product attributes are statistically significant in determining sales? □□ (Correlation Matrix□, Decision Tree Analysis, □Multiple Linear Model□, Transforming data)
- □□Applying different model algorithms to predict sales average □□(GBT,□ LM,□ RF,□ SVM). □

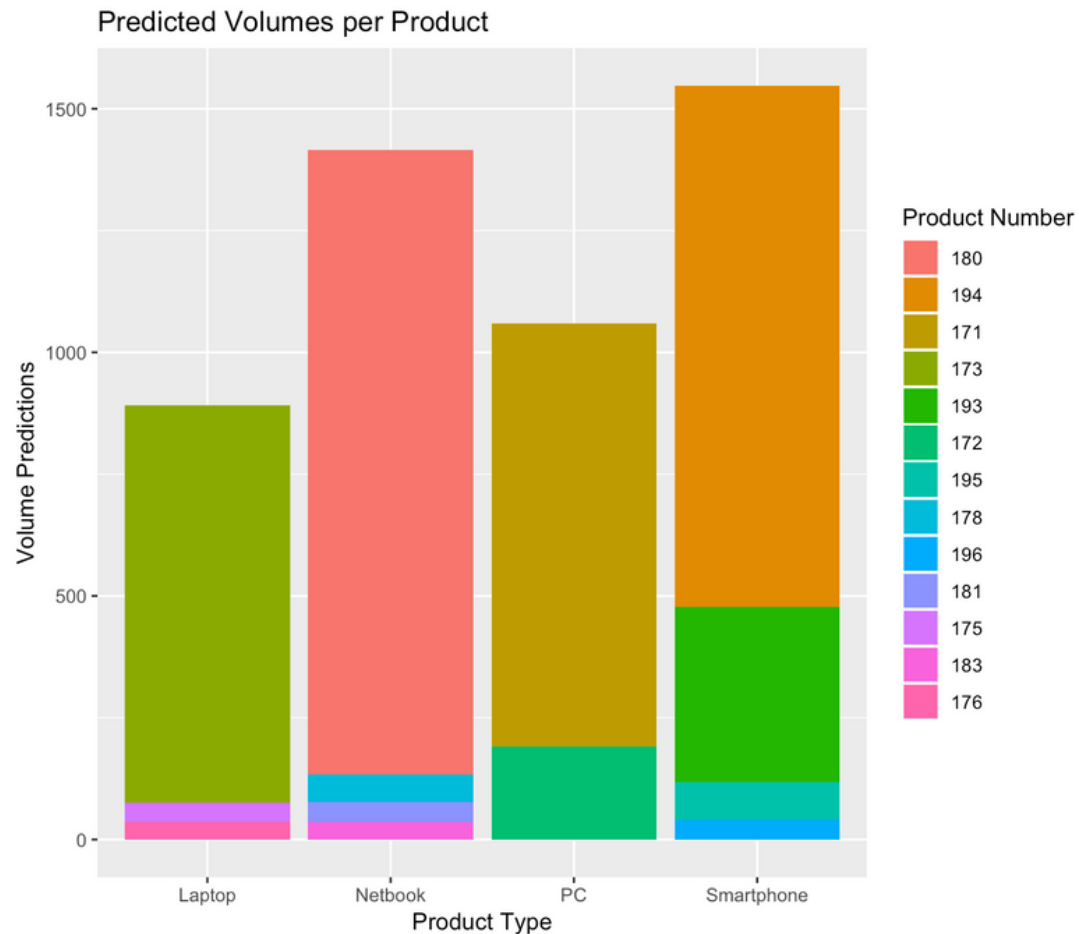


### Problem

- Unknown future sales of product categories. □□
- Unknown impact of service reviews & customer reviews on future sales .

# Maximizing Portfolio Profitability

## Key Findings & Recommendations



### ● Key findings

#### ● Predicted sales:

- Laptops: min - max: 0-1800; average: 835
- Netbook: min - max: 1480-2700; average: 1861
- PCs: min - max: 445-2000; average: 785
- Smartphones: min - max: 900-2950; average: 1682

#### ● Important Sales Indicators:

- Positive Service Review
- 4 Star Reviews

### ● Recommendations

- Additional Marketing on PCs and Laptops (potential combined marketing with Game Console).
- Highlight Positive Customer Reviews and 4 Star reviews in Marketing Process.
- Collect accurate data for 5 Star reviews.



# Growth by Acquisition

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## Problems, Goals & Methodology



### Business Goal

Deciding on whether to acquire Electronidex or not.



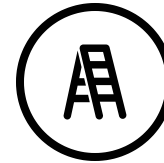
### Problem

- Should Blackwell acquire Electronidex?
- Any patterns or item relationships within Electronidex's transactions?



### Analysis Goal

- Finding associations among the products bought by different customer segments (B2B/B2C).



### Methodology

- **Acquisition Decision**

- Compare BW-ED products
- Compare BW-ED customer base

- **Product Associations**

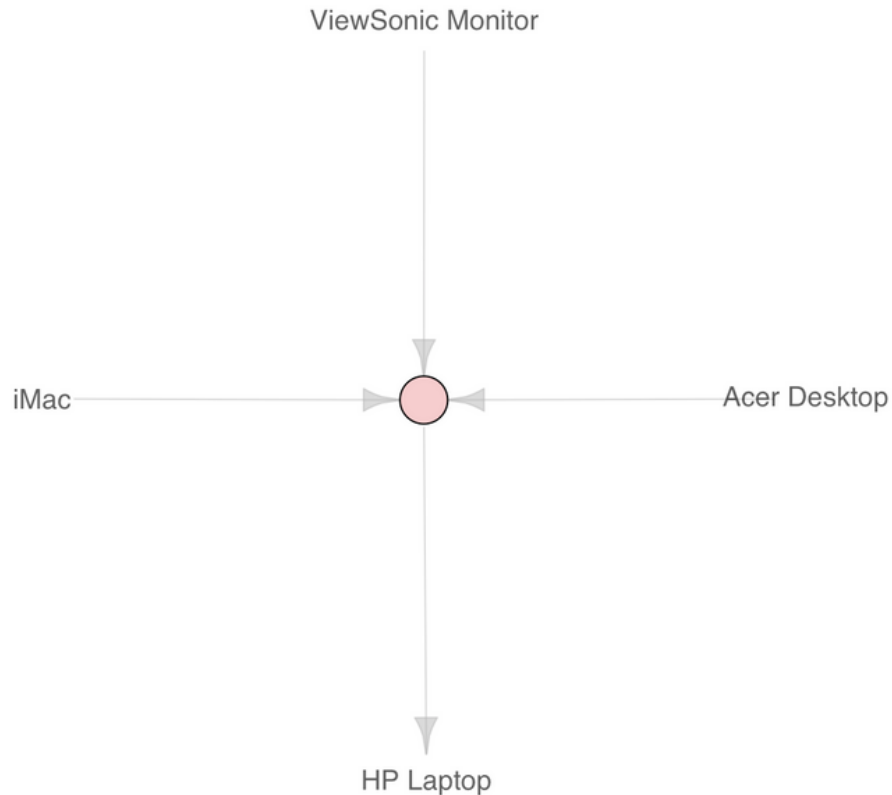
- Analyze data and associations
- Divide customer base to B2B and B2C (2+ laptops/desktops -> B2B)
- Define important associations

# Growth by Acquisition

## Key Findings & Recommendations | Product Associations

Graph for 1 rules

size: support (0.01 - 0.01)  
color: lift (2.239 - 2.239)



- **Key findings**

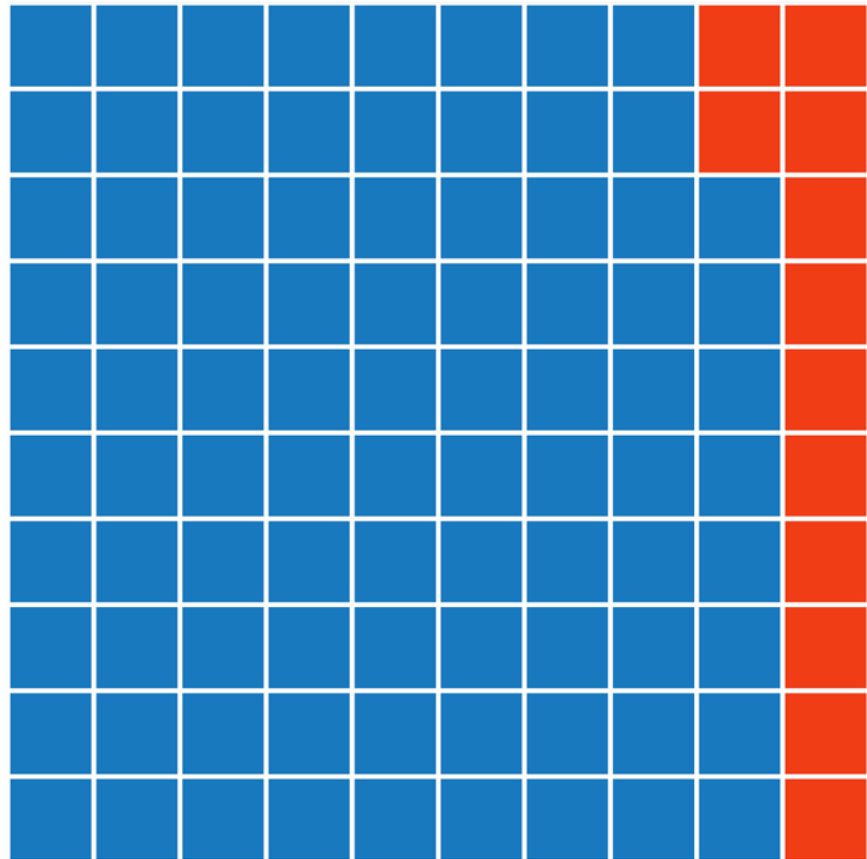
- There are relevant product associations to be used to boost sales.
- Electronidex clients buy several laptops/desktops at the same time.

- **Recommendations**

- Customize campaigns based on found rules.
- Further analysis for specific purposes (inventory management, increasing profitability, etc.).

# Growth by Acquisition

## Key Findings & Recommendations | Electronidex Acquisition



■ B2B ■ B2C

- **Key Findings**

- 88% of Electronidex customers/per items sold are B2B
- High sales volumes for higher value products
- 4.4 items/transaction

- **Recommendations**

- **Acquire Electronidex**
- Online-only retailer: Good for Blackwell online business, low-cost
- Upselling for B2B, cross-selling for B2C, warranties for all

# Conclusions

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## Growth Opportunities for Blackwell



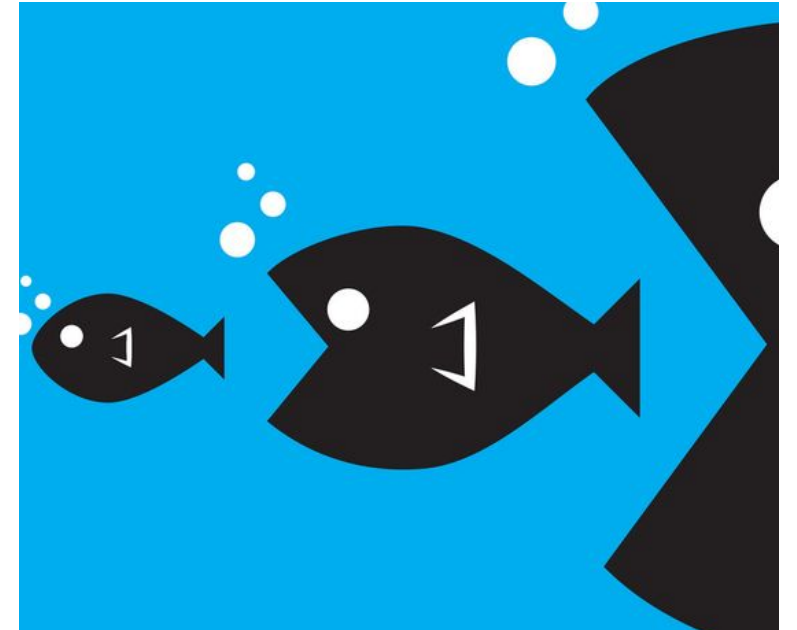
### Identifying Strategic PC Partner

Have a strategic partnership with **Sony**.



### Maximizing Portfolio Profitability

Focus on **achieving better service reviews** and **selling highly rated products**.



### Growth by Acquisition

**Acquiring Electronidex** would boost our product offering and customer base.

# Q&A

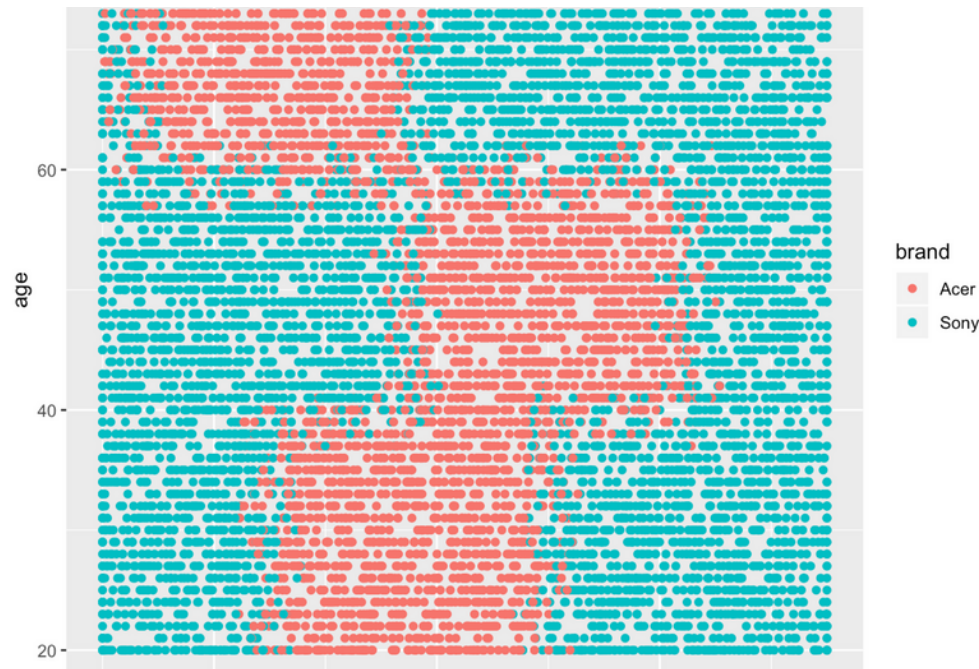
**Disclaimer: All data used and analysis made complies with GDPR.**

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# Technical Appendix

## Identifying the Strategic PC Partner

Age-Salary/Brand Graph, Model Result Comparison



Age and Salary are main drivers of brand preference

### Accuracy

	Min.	1st Qu.	Median	Mean	3rd Qu.	Max.
rf	0.9070081	0.9152086	0.9212116	0.9190486	0.9232581	0.9271255
C5.0	0.9070081	0.9141992	0.9212107	0.9220124	0.9308617	0.9380888

### Kappa

	Min.	1st Qu.	Median	Mean	3rd Qu.	Max.
rf	0.8030710	0.8201573	0.8323519	0.8282313	0.8373080	0.8450031
C5.0	0.8022495	0.8181131	0.8318742	0.8347868	0.8532977	0.8694579

Models' results are very similar

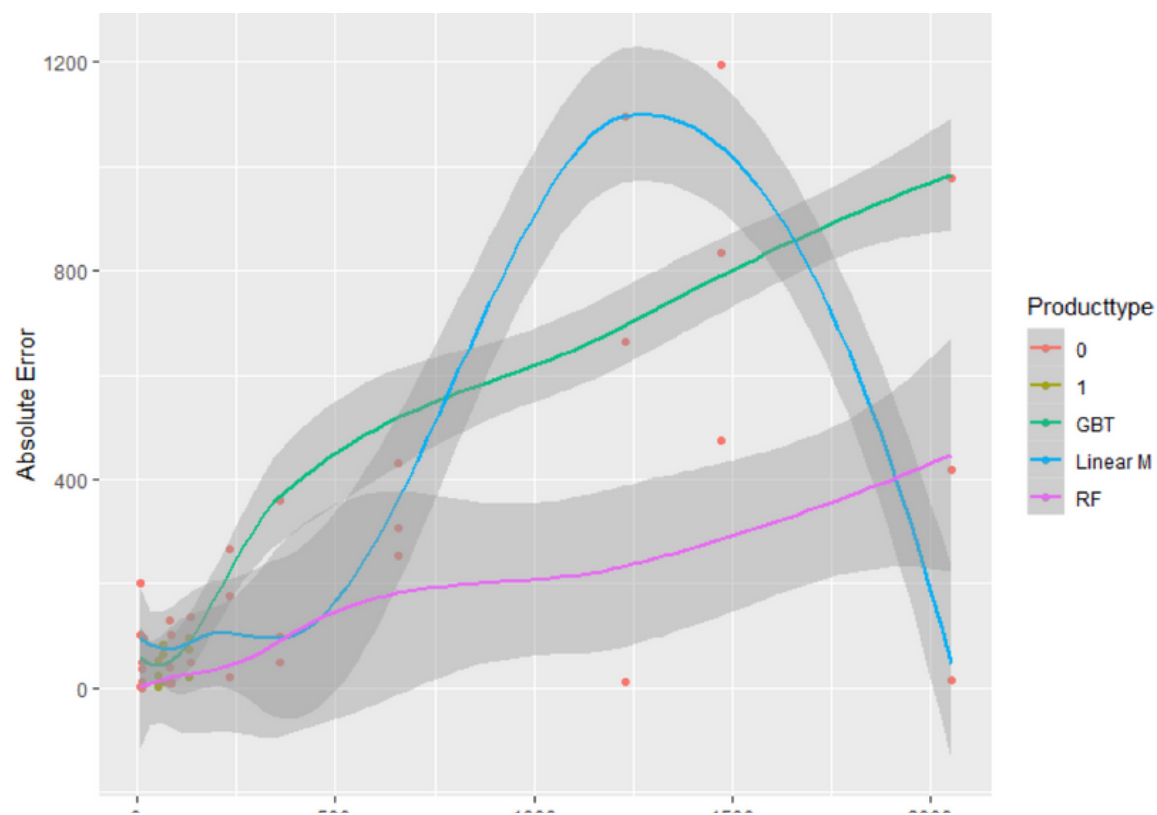
RF -> Acer:1897 Sony:3103

C5.0 -> Acer:1865 Sony:3135

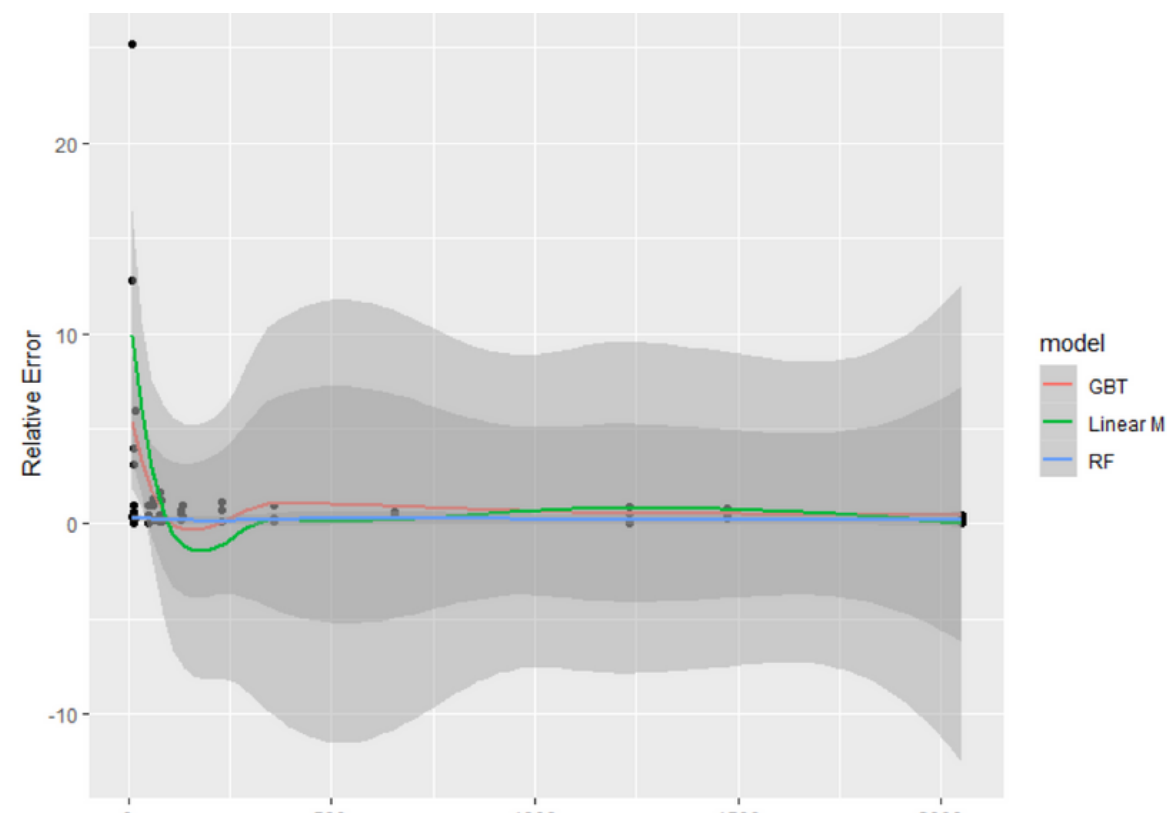
# Technical Appendix

## Maximizing Portfolio Profitability

Absolute vs. Relative Error Metrics



B2B

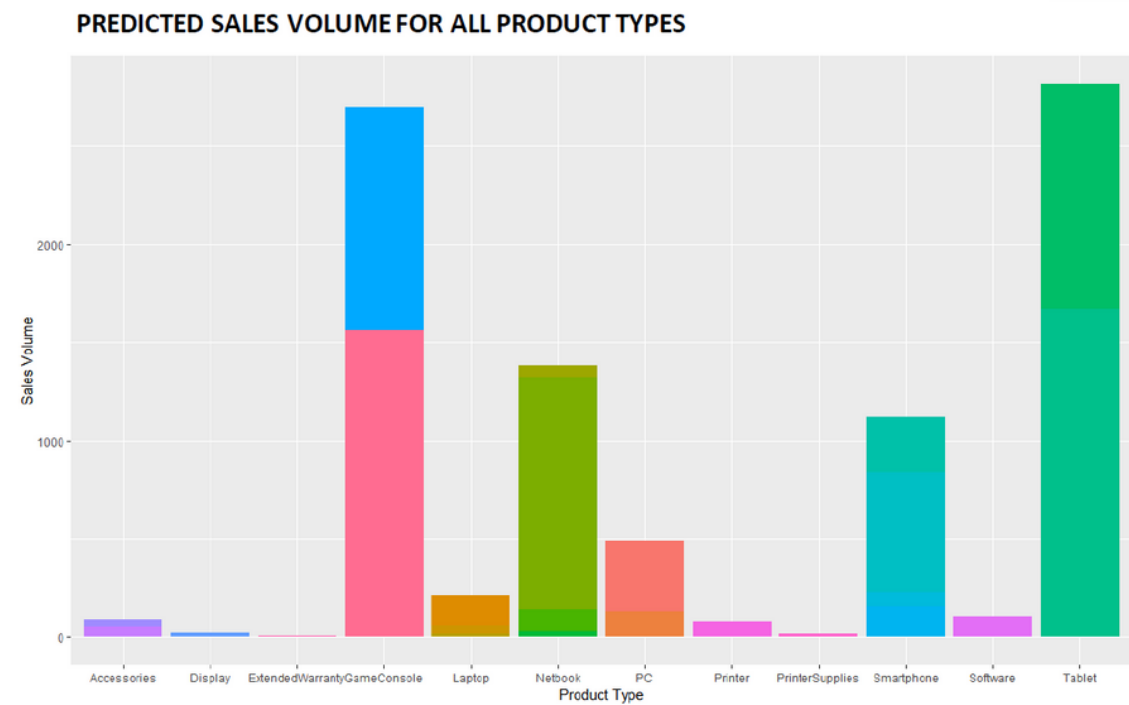
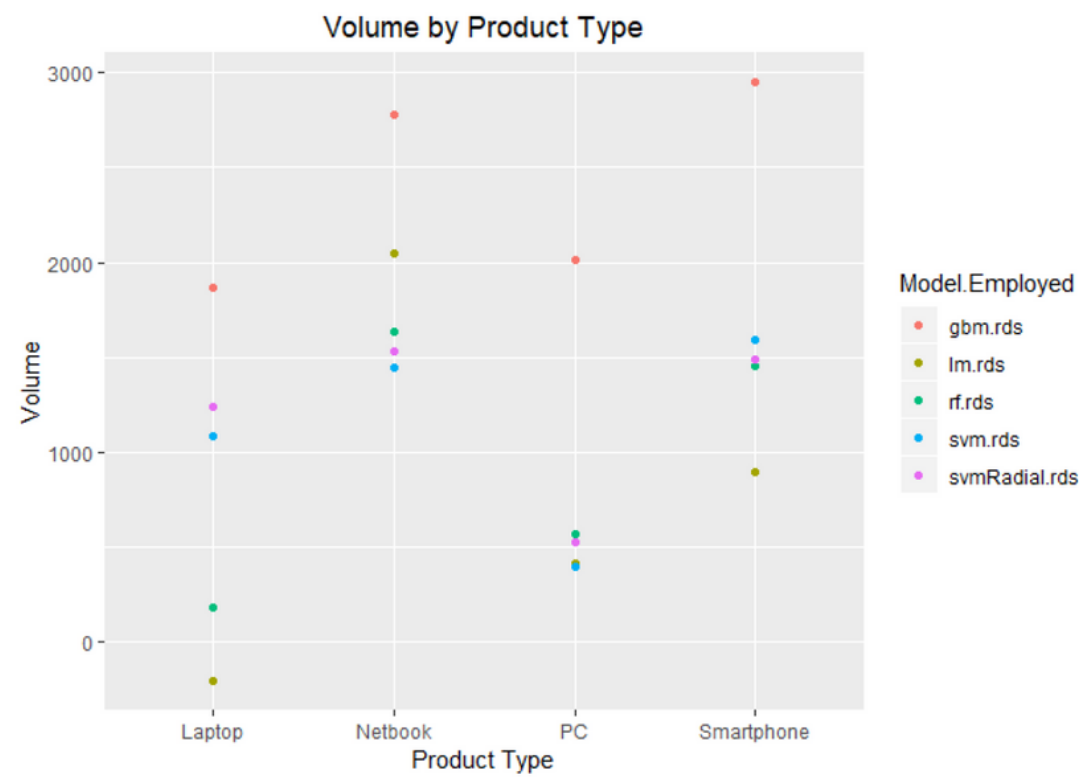


B2C

# Technical Appendix

## Maximizing Portfolio Profitability

Sales Volumes by Product Type

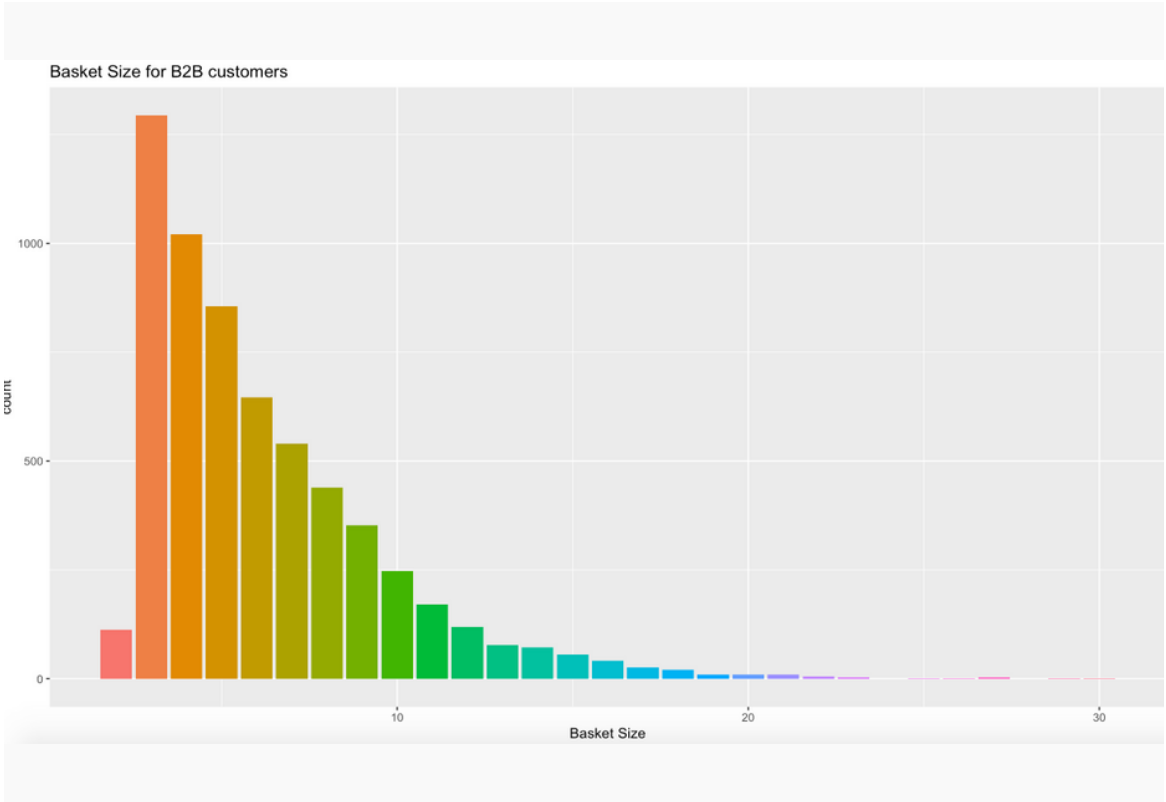




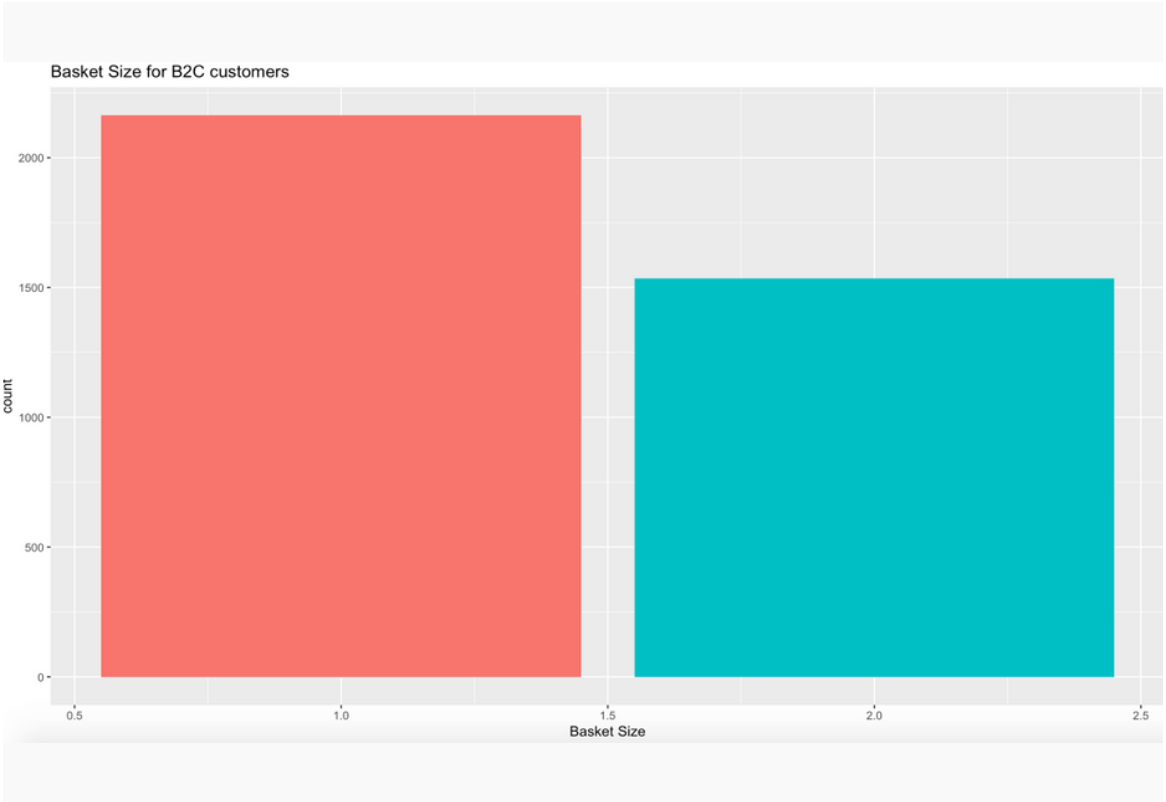
# Technical Appendix

## Growth by Acquisition

Items per transaction for B2B and B2C clients of Electronindex



B2B



B2C