

# Improving the Retail Experience with Predictive Analytics

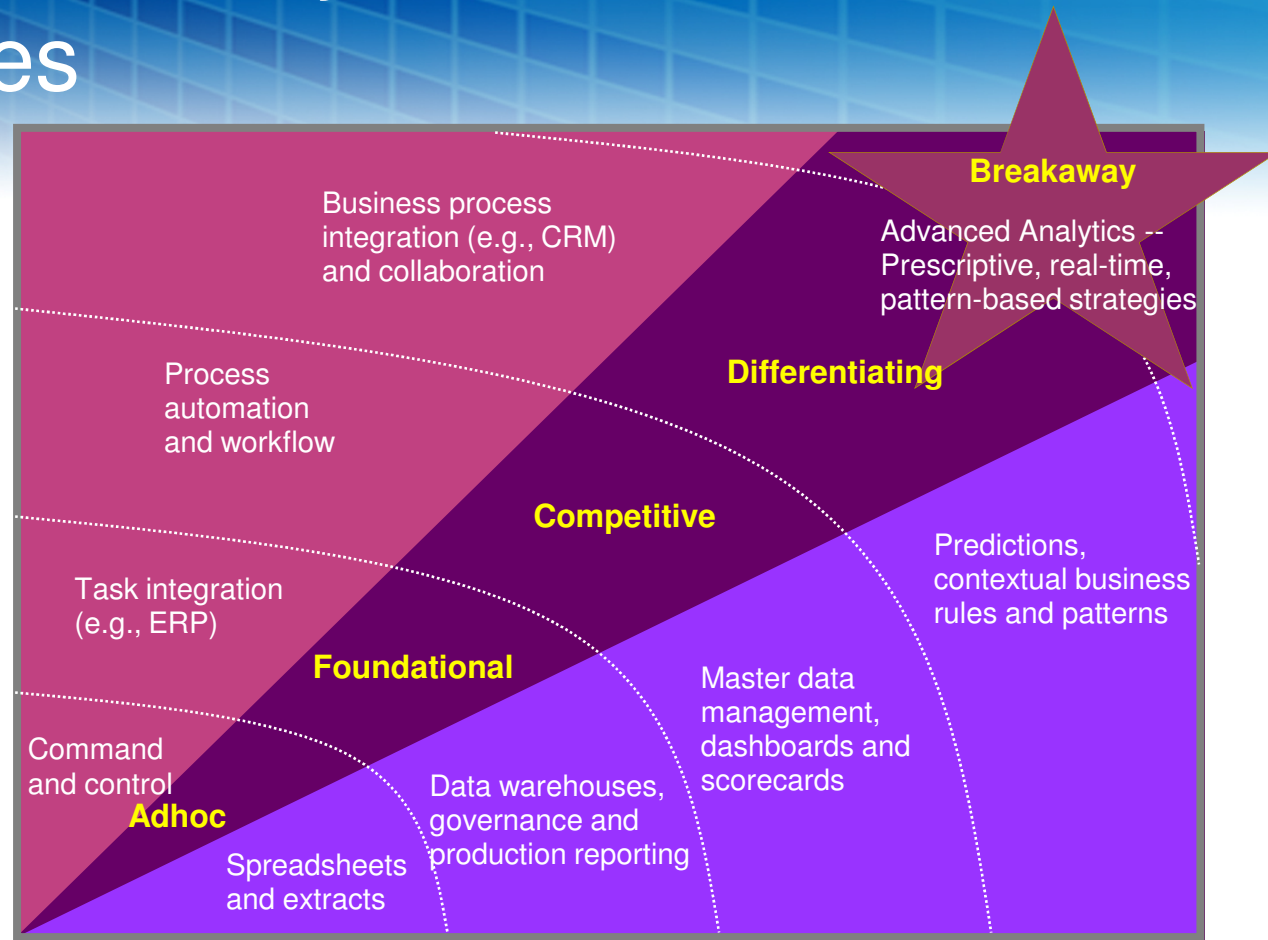
# Overview, Goals, & Introductions

- Goal: To present the Retail Business Maturity Model
  - Equip you with a plan of attack if/when you make your business case for predictive analytics in your retail organization
- Identify which analytic processes could easily be implemented now at your organization to:
  - Develop Smarter Merchandising & Supply Chains
  - Build Smarter Retail Operations
  - Deliver a Smarter Shopping Experience

# A Framework for the Addressing Retail's Three Major Business Imperatives

## Business Operations Maturity

How the business applies information to achieve its goals through policies, business processes and organization



Source: *Breaking Away with Business Analytics and Optimization: New intelligence meets enterprise operations* available in late 2009 at [www.ibm.com/gbs/intelligent-enterprise](http://www.ibm.com/gbs/intelligent-enterprise).

## Information and Analytics Maturity



















How the business manages information and learns from it

# Predictive Analytics Drives Differentiation (and ROI) at the Manufacturing Level

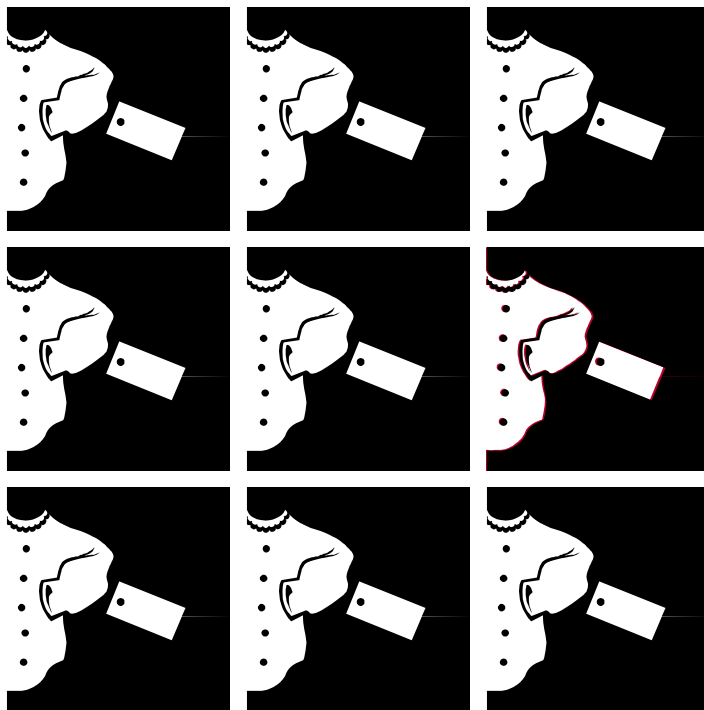
A manufacturer with a diverse portfolio of popular brands and retail outlets uses...

SPSS Predictive Analytics  
to measure performance at the  
brand and market levels to...

- Better understand brand performance and **help guide \$300M+ per year** of advertising and marketing spend
- Utilize 250,000+ data points/week to **open up new markets** and refocus brands to different sectors
- Predict potential revenues with up to **85 percent accuracy** when acquiring new properties for retail outlets

Advertising Plan at Rollout					
Q2			Q3		
					
					
					
					
					

# Predictive Analytics Drives Differentiation (and ROI) at the Retail Level

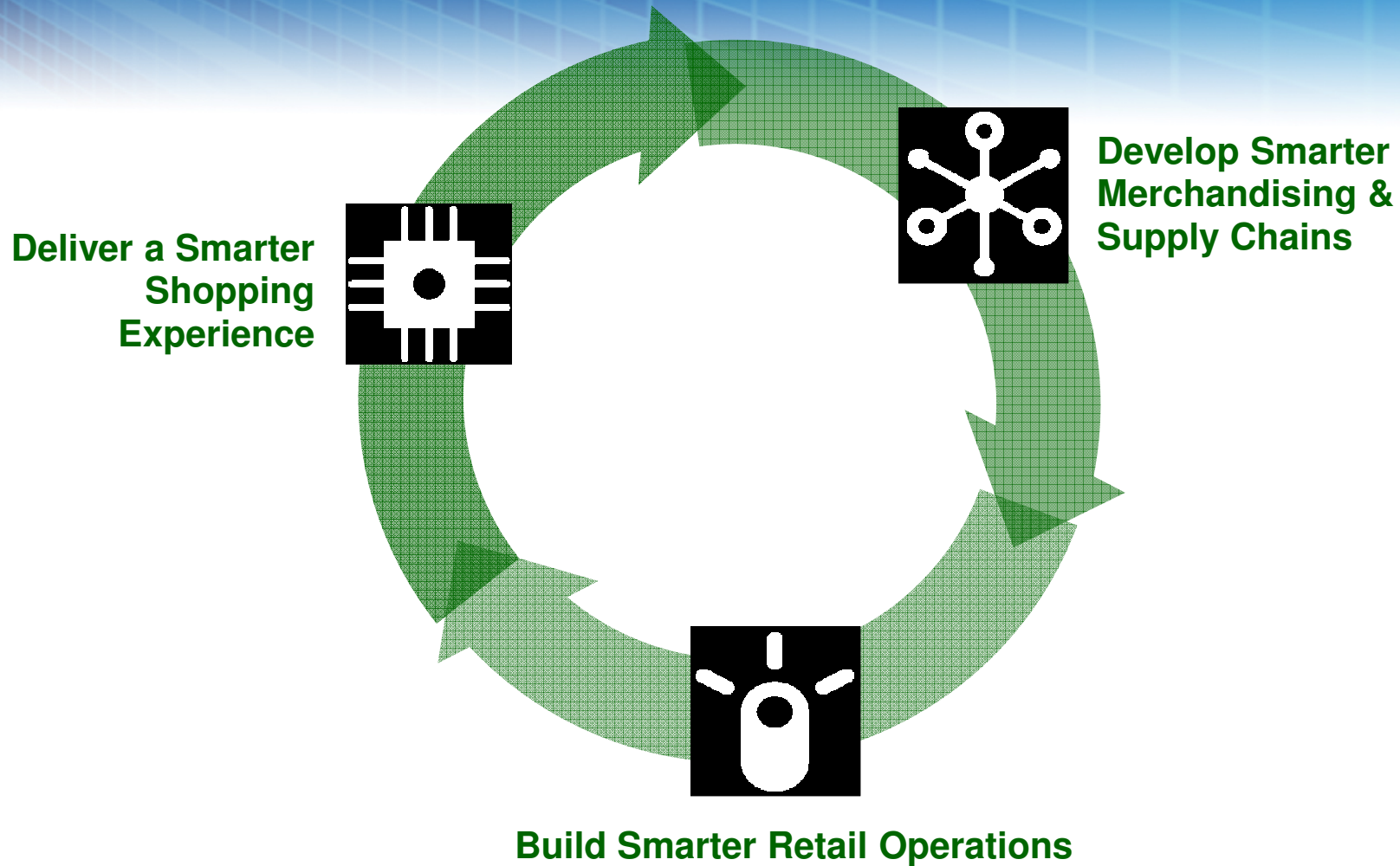


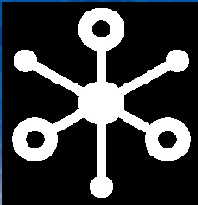
A department store with outlets in 12 major cities uses...

SPSS Predictive Analytics  
to develop customer  
profiles and group similar  
segments to...

- Personalize offers for each customer leading to **higher conversion rates**
- Better understand price elasticities and **the impact of price changes** on both revenues and inventory
- Improve direct marketing efficiency – reducing print runs by **30 percent** while maintaining response rates – through analytic postal code segmentation

# Three Major Imperatives for Business Optimization in Retail





# Develop Smarter Merchandising & Supply Chains



## Vendor Management:

Trusted single source of information enabling partner collaboration and information exchange resulting in speed, lower cost, efficiencies and increased transparency and accountability.



## Supply Chain Optimization:

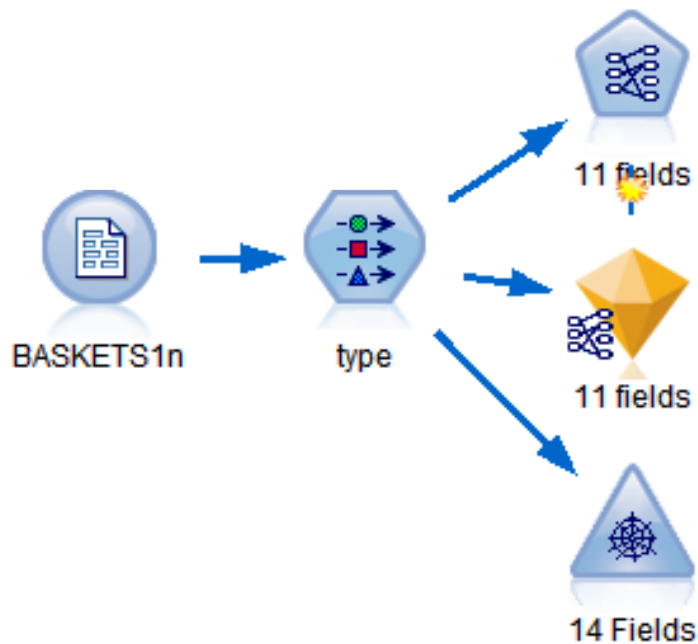
Innovative approach to continually optimize sourcing and distribution as new categories and products are introduced.



## Product Information Management:

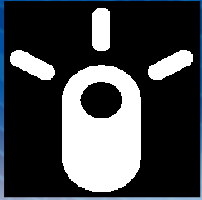
Aggregates product data to eliminate duplication and improve efficiency and accuracy resulting in speed to market of new products.

# Determining Cross-sells, Up-sells, and Substitutions with Predictive Analytics



- **Retail Objective:** To identify and predict which SKUs are and will be purchased together for purposes of cross-sells, up-sells, and “substitution purchases”
- **Analytics Methodology:** Typically association modeling via Apriori
- **Overview of Approach:** Apriori extracts a set of rules from the data – *If X was purchased then Y was purchased* – pulling out the rules with the highest information content
- **Retail Analytics Maturity Level:** Differentiating to Breakaway



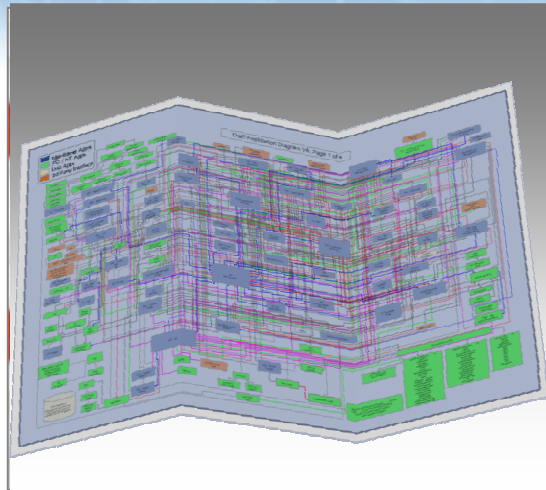


# Build Smarter Retail Operations



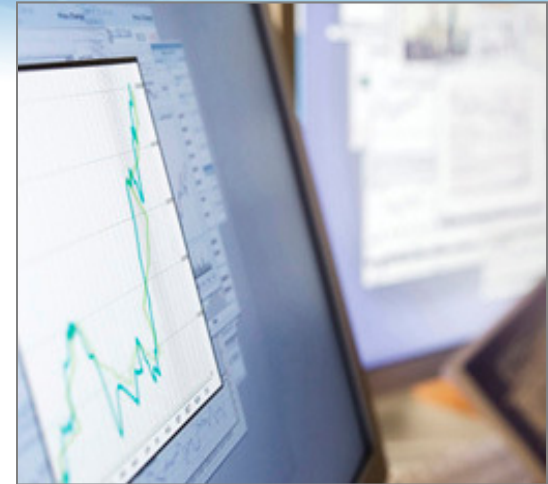
## Retail Performance & Financial Analytics:

Providing multidimensional analysis around KPIs and advanced predictive analytics, transforming into a responsive retail organization that can take action quickly.



## Content Management & Process Optimization:

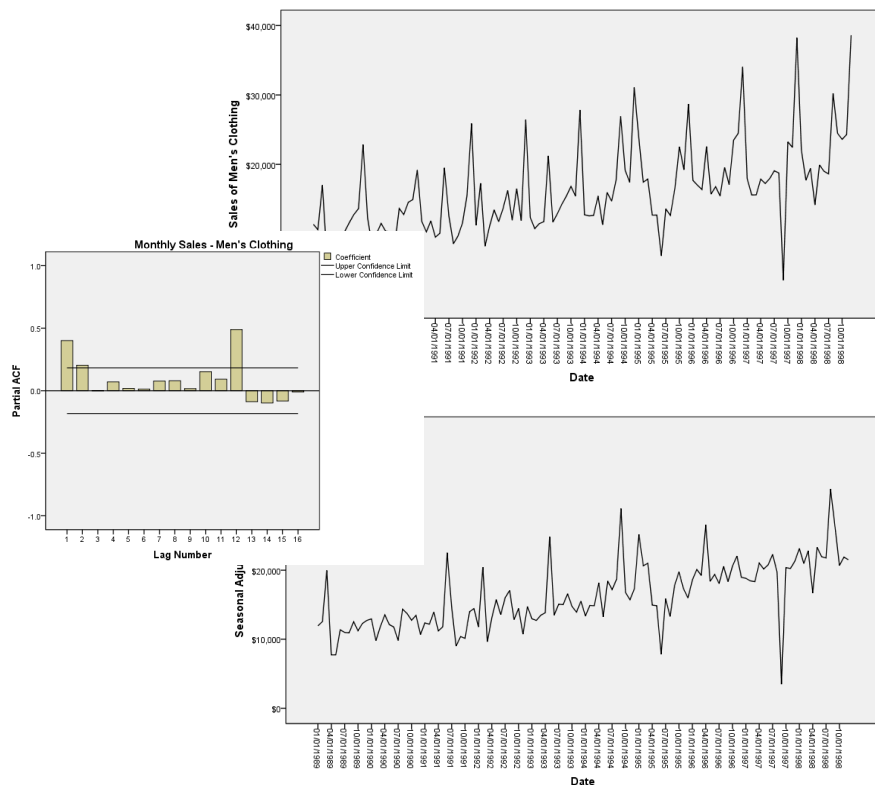
Manage unstructured data and automate retail processes to attain visibility, reduced costs and cycle time resulting in optimized, agile processes.



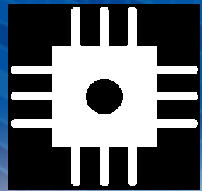
## Retail Data Growth & Risk Management:

Reduce costs, improve performance and mitigate risks and address compliance issues associated with data growth and use in retail.

# Removing Seasonality is Often a First Step in Analyzing Retail Data



- **Retail Objective:** To remove periodic fluctuations, such as seasonal highs or lows, to better identify true trends in sales and inventory
- **Analytics Methodology:** Seasonal Decomposition
- **Overview of Approach:** Decompose a series into a seasonal component, a combined trend and cycle component, and an "error" component
- **Retail Analytics Maturity Level:** Foundational



# Deliver a Smarter Shopping Experience



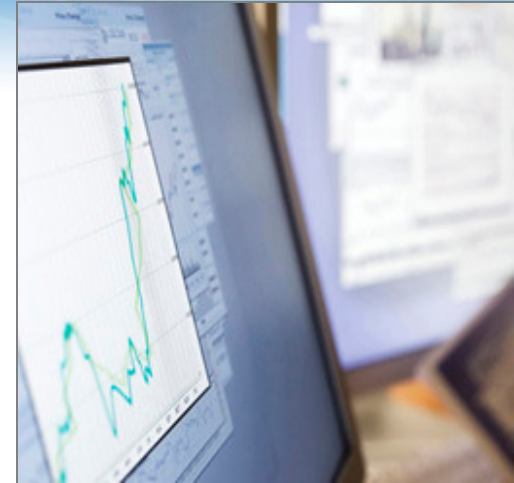
## Single View of Customer:

Aggregates customer data from across the retail system to create a unified, 360-degree view of behavior across all channels.



## Marketing Effectiveness:

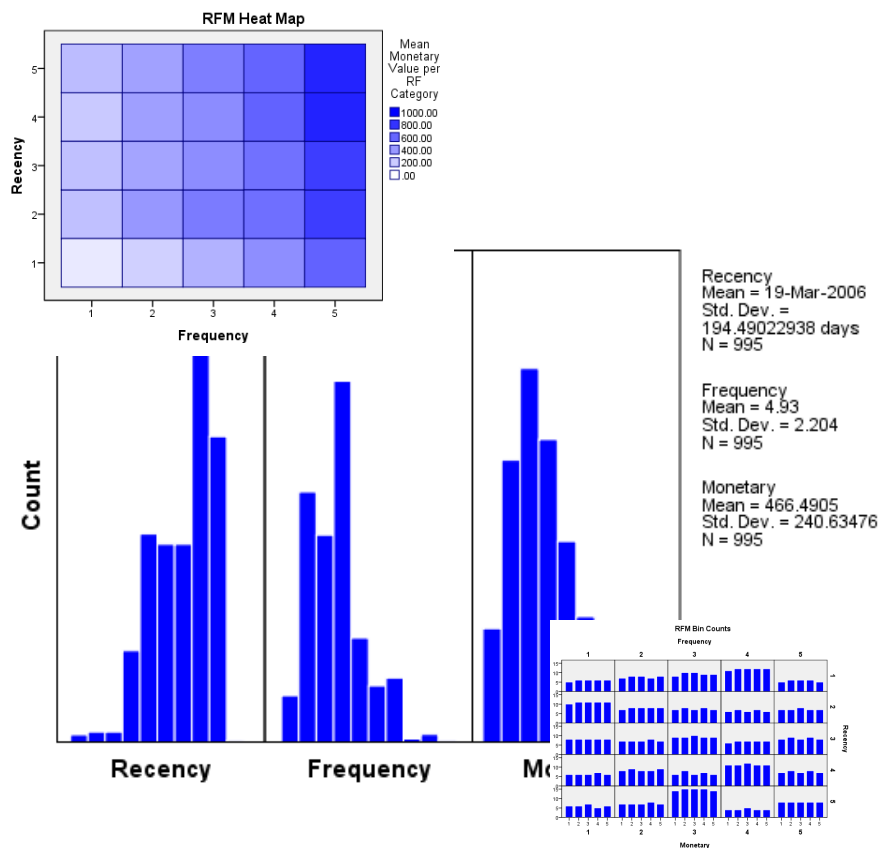
Providing valuable and **predictive** insights into how effective marketing programs are and uncovering consumer sentiment on products, brands, market trends and competitors.



## Customer Insight:

Provide a holistic view of customer behavior, preferences and loyalty while enabling the real-time integration of **predictive** insights into core business processes and decisions.

# RFM Analysis Provides a Quick Snapshot into Customer Segmentation, Behavior



- **Retail Objective:** To understand customers and integrate customer insight in key retail planning processes
- **Analytics Methodology:** Recency, Frequency, Monetary (RFM) Analysis
- **Overview of Approach:** Segmenting customers based on amount, number, and the timing of purchases
- **Retail Analytics Maturity Level:** Foundational

# Measuring Direct Marketing Effectiveness with Basic Segmentation, Analysis

The screenshot shows a data table with columns: IPackage, PostalCode, Age, Income, Education, Reside, Gender, and Married. A red box highlights the first few rows of data. Overlaid on the table is a 'Direct Marketing' wizard window. The wizard has three main sections: 'Understand My Contacts', 'Improve My Marketing Campaigns', and 'Score My Data'. The 'Improve My Marketing Campaigns' section has a red box around the 'Compare effectiveness of campaigns (Control Package Test)' option.

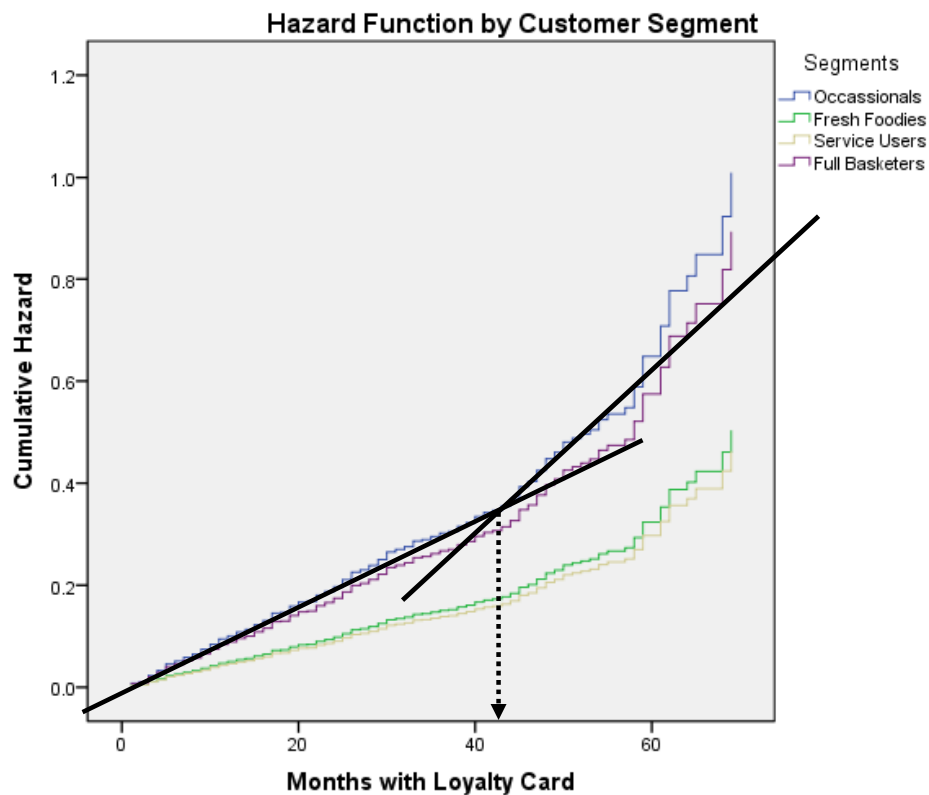
- **Retail Objective:** To predict the response rates of direct marketing promotions based on customer attributes
- **Analytics Methodology:** Cluster analysis; control package testing
- **Overview of Approach:** Categorize customers into clusters; perform A vs. B testing to validate statistical differences; segment customers by postal code
- **Retail Analytics Maturity Level:** Competitive

Response Rate Comparison

		Control Package		Test Count
		Control		
		Count	Column N %	
Effectiveness (1=Yes 0=No)	0	875	96.2%	945
	1	35	3.8%	62

There is a statistically significant difference between Control and Test.

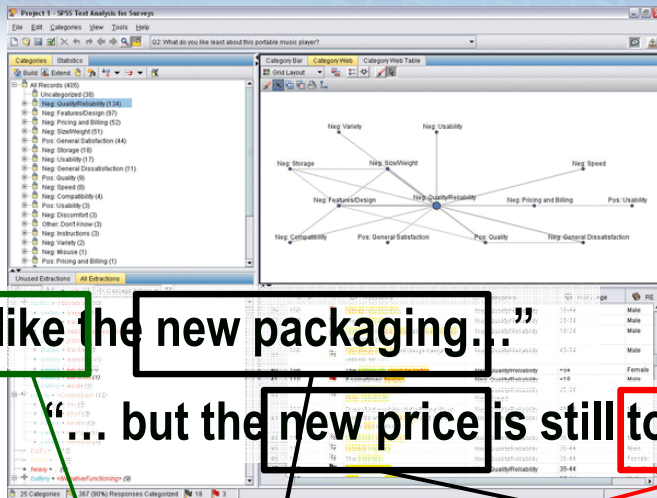
# Survival Analysis: One Predictive Method for Modeling “Time to Defection”



- **Retail Objective:** Based on business rules, predict the average time to “defection”
- **Analytics Methodology:** Survival Analysis – Cox Regression
- **Overview of Approach:** This model produces survival and hazard functions that predict the probability that the event of interest has occurred at a given time  $t$  for given values of the predictor variables.
- **Retail Analytics Maturity Level:** Differentiating

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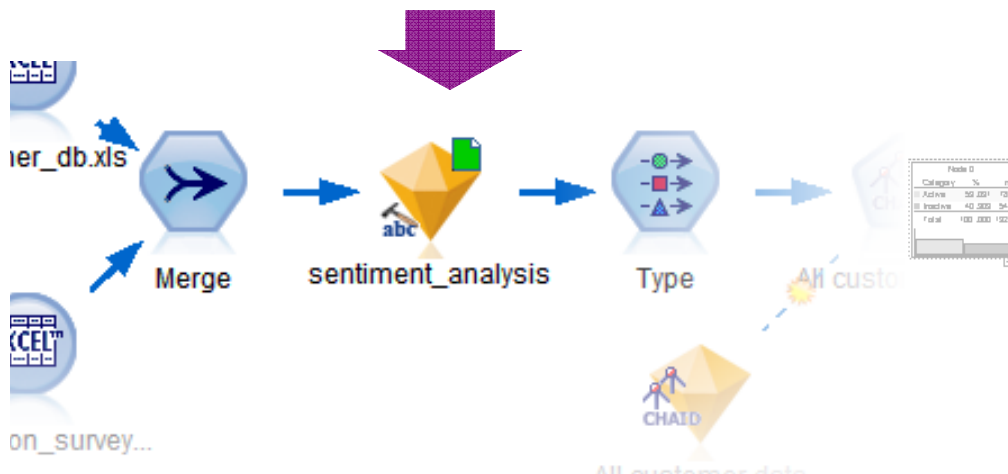
# Unstructured Feedback Can Show Trends and Refine Predictive Models



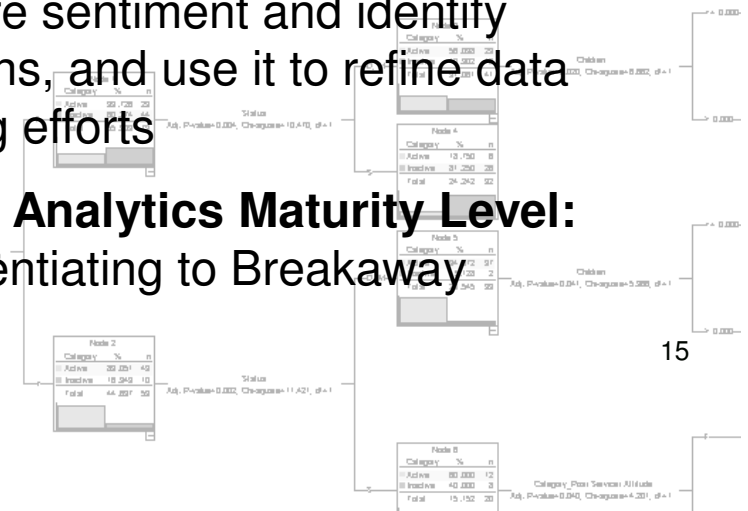
“like the new packaging.”  
 “... but the new price is still too high.”

Positive: Product Negative: Pricing

- **Retail Objective:** Capture customer feedback and use it to explain purchase patterns and outcomes
- **Analytics Methodology:** Text analytics with text link analysis, CHAID-based classification data mining
- **Overview of Approach:** Convert unstructured data to structured, capture sentiment and identify patterns, and use it to refine data mining efforts



- **Retail Analytics Maturity Level:** Differentiating to Breakaway



# Concluding Comments, Suggested Next Steps, and Q&A

- Identify which analytic processes could easily be implemented now at your organization to:
  - Develop Smarter Merchandising & Supply Chains
  - Build Smarter Retail Operations
  - Deliver a Smarter Shopping Experience
- Evaluate where your organization is (and where it needs to be) on the Retail Business Maturity Model:
  - Adhoc, Foundational, Competitive, Differentiating or Breakaway
- Consider evaluating a predictive analytics tool by means of a:
  - Webinar, White Paper, Spec Sheet, or Trial/Evaluation Version

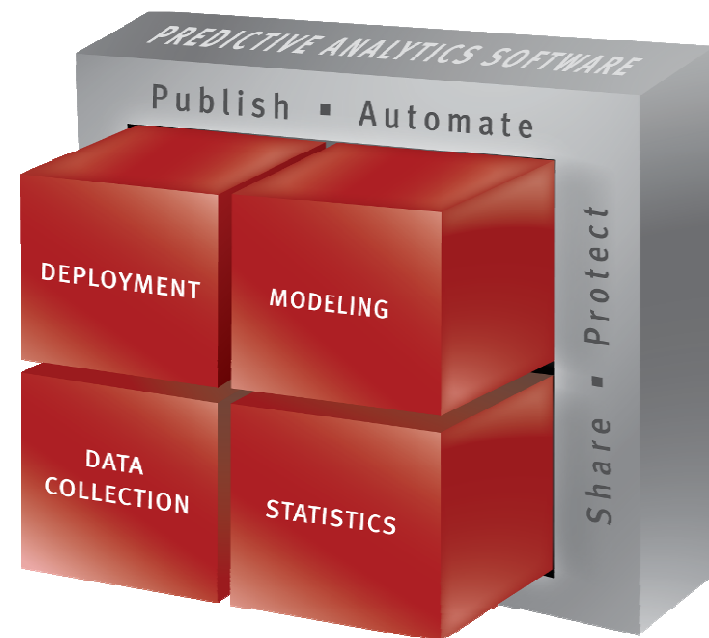


# Appendix

- Delivering a Smarter Shopping Experience with Business and Predictive Analytics

# Introducing the SPSS Product Portfolio

- Data Collection:
  - Delivers an accurate view of customer attitudes and opinions
- Statistics:
  - Drive confidence in your results and decisions
- Modeling:
  - Bring repeatability to ongoing decision making
- Deployment:
  - Maximize the impact of analytics in your operation



# A Standardized Approach to Attract, Grow, and Retain in Retail

