

# Consumer Marketing using Big Data & Analytics

Eric Williams, former VP and CIO, Catalina Marketing



## Who is Catalina Marketing

- Founded in 1983
- Headquartered in St. Petersburg, Florida
- \$500+ million annual revenue
- Privately held (Hellman & Friedman)
- Invented consumer-based Marketing in early 1980's
  - ~ 31,000 US Grocery & Mass Merchants
  - ~ 10,000 International (France, Italy, Germany, Belgium, Netherlands, UK, Japan)
  - ~ 17,000 Pharmacy (US)



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## Defining Big Data is Relative

- **Big data** are datasets that grow so large that they become awkward to work with using on-hand database management tools.
- Simply put, they are sets of data that:
  - contain hundreds of billions of rows
  - Tens to hundreds of terabytes in space
  - change frequently and require daily management

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## Catalina Data Warehouse

- |                            |                    |                   |
|----------------------------|--------------------|-------------------|
| • Average shopping basket  | 16 items + total   | 17                |
| • Average Daily volume     | 2,500 transactions | 42,500            |
| • One year of transactions | 364 days           | 15,512,500        |
| • Stores in Network        | 31,000 stores      | 480,887,500,000   |
| • Years of Data            | 3 years of data    | 1,442,662,500,000 |



## Conventional stores have lots of Structured Data

SHARP ELECTRONIC CASH REGISTER ER-A460			
08/10/97	2:40PM	01	Date
000000	W0020	JOHN	Time
			Clerk number
			Clerk name
			Consecutive number
			Register number
JACKET	11	\$150.00	Unit price
PANTS	11	\$70.00	Text
SHIRT	11	\$50.00	Text
BELT	11	\$10.00	Text
HOSE ST		\$280.00	Merchandise subtotal
TAX1		\$16.80	Tax total amount
XXXXTOTAL		\$296.80	Total amount
CASH		\$300.00	Cash tendered
CHANGE		\$3.20	Cash change



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## So... what do I do with this?

This is awesome !

Cool Product

Colors are key to my decisions



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## The world is changing – everyone has a customer

Steve Jobs once said, “It is not the customer’s job to know what they want.”

It is yours

- Don’t think you don’t have a customer because you work in an internal support function or for a company that provides components or services. Everyone has a customer, whether it is a purchaser, user, or co-worker.

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## Consumers have changed



- Value Conscious
- High Expectations
- Time Starved
- Loyalty challenged
- Mobile enabled



Unfortunately...

- We are more self-centered
- We expect immediate gratitude
- We expect instant access

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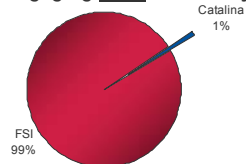
## Data and Technology

- Four key examples of how data can change Marketing organizations
  - Traditional BI and Analytic Targeting
  - Data Mining and Predictive Analytics
    - The use of HPC and In-database technology
  - Offer Optimization
    - The use of Marketing Automation
  - The Brave New World of Media Optimization

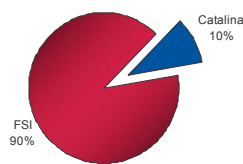
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## Results of Precision Targeting

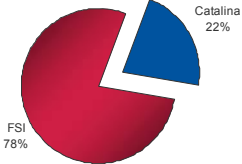
Engaging More Selectively



1% of coupon distribution

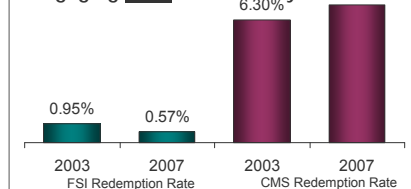


10% of coupon redemptions



22% of coupon redeemed value

Engaging More Successfully



Catalina redemption rate: +11%

FSI redemption rate: -37%

## Making Consumer information Actionable

### Launching New Items



#### Precision Marketing Solution

Find the people who care  
Tell them the day it's in the store  
First an ad, then an incentive

#### Result

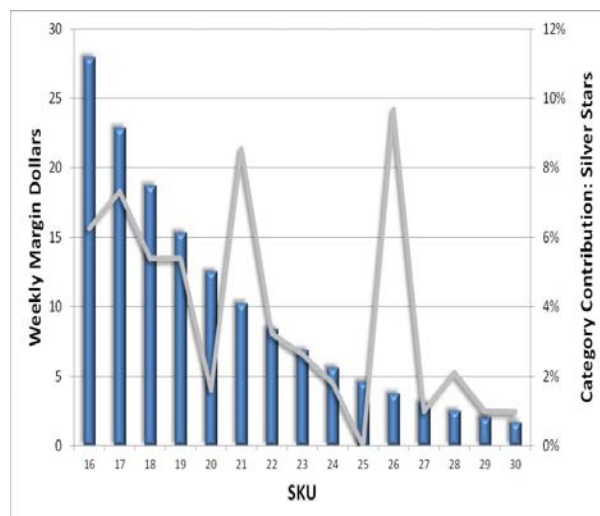
Accelerated new item velocity  
Ongoing higher share

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## Making Consumer information Actionable

SKU sales  
alone do  
not tell the  
whole story



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## Predictive Modeling – Books / CDs / Movies

What is Predictive Modeling?

A sophisticated method to identify and communicate to consumers who have never purchased your brand but are most likely to buy

Predictive Modeling:

- 1) Greatly enhances trial efficiency
- 2) Excellent conversion rates after trial
- 3) Increases “never buy” response rates

Brand Buyer



Likely to Buy Brand



Likely brand buyers exhibit similar grocery purchase behavior as current brand buyers, only they have not yet purchased the brand

amazon.com



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## Making Consumer information Actionable

### Data Mining – Predictive Analytics

Data mining allows marketers to focus their investments against most likely new customers



When consumers first try Soy, they tend to remain loyal to that product. If we could only predict which households cream their coffee with milk we can attract them, but almost all households buy milk.

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## How do you Predict households lightening coffee

- Within Catalina's household database
  - Use Behavior Activated Research (BAR) to conduct attitudinal study of a group of milk and coffee households
  - Identify those who lighten their coffee with milk
- Identify similar households in Catalina's database based on a predictive model
- Apply impressions against identified groups
- Measure changes in groups' purchase behavior

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## Even Media Businesses are using Data to predict their consumer's needs





"Netflix is commissioning original content because it knows what people want before they do ... Netflix has always used data to decide which shows to license, and now that expertise is extended to the first-run. And there was not one trailer for 'House of Cards,' there were many. Fans of Mr. Spacey saw trailers featuring him, women watching Thelma and Louise saw trailers featuring the show's female characters and serious film buffs saw trailers that reflected Mr. Fincher's touch."

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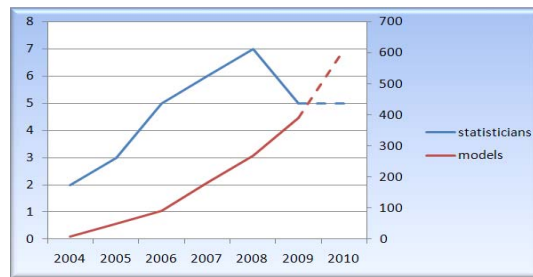
## Significant changes in 15 year of modeling

	Original Development		In-database solution
	100k IDs 1 mm records 40 meg	→	180 mm IDs 1.5 trillion records 800 tb "virtual"
 <u>CPU</u>	1 CPU PC SAS 500gig	→	400+ CPUs Unix SAS + Netezza 120 TB physical disk space
 <u>Time</u>	6 weeks 4 weeks 6 weeks	→	1 day to select predictors 1 day to test models 1 day to deploy models
 <u>Notes</u>	Faster models cuts cost per model = models more widely available to clients Larger samples = able to model more rare events Still further progress to be made in searching models, aggregate variables, speed to market...		

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## Impact to Business using In-database technologies

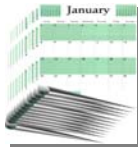
- Increased model throughput = Increased Revenue
- Flat Statistical resources required
- More robust / sophisticated models



Year	2004	2005	2006	2007	2008	2009	2010
Statisticians	2	3	5	6	7	5	5
Models	8	50	90	180	270	390	610

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## Targeting the right offer to each consumer



**Household Targeting  
based on historical  
purchases**



**Identifies Category  
Using Households**

**Profile Each Household By Brand Loyalty**



**Loyal User**  
\$.50 offer



**Occasional User**  
\$.75 offer



**Competitive User**  
\$1.00 offer

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## Offer Optimization

1	2	3	4	5	6	7
Cereal \$1 off \$7 Cereal \$1 off \$5 Cereal \$1 off \$3	<del>Cereal \$1 off \$7 Carrots \$2 off \$3 lb FREE Salad Bag</del>	Jam \$1 off \$3 Jam \$2 off \$4 Jam \$1 off \$5 Jam \$2 off \$7	Milk \$0.50 off gal. <del>Milk \$1 off \$7</del> Milk \$1 off \$5 Milk \$1 off \$3	OJ \$1 off \$7 OJ \$1 off \$5 OJ \$1.50 off gal.	Bakery \$1 off \$7 FREE Muffin	<del>Cheese \$2 off \$7 Cheese \$1 off \$7 Cheese \$3 off \$5 Cheese \$3 off \$3</del>



Customer must qualify for 3  
Offer Groups to get a  
distribution.  
If customer qualifies for more  
than 5, they should only get the  
5 highest priority

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## The New Consumer

### Segmentation is Dead!

Technology allows you to market to a segmentation of one



Personalization is what consumer's want and demand

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## Omni-Channel and Omni-Media

Consumers have multiple purchase points, so you need multiple marketing points



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# Multi-Channel Shopper Platform



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**Data gets you in the game**  
**Information provides the advantage**  
**Knowledge changes everything<sup>sm</sup>**

**Thank You!**

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