

MARCH 2014

# PREDICTIVE ANALYTICS FOR RETAILERS

Insights into Tomorrow's Shopping Behaviors

# GOTOWEBINAR NAVIGATION

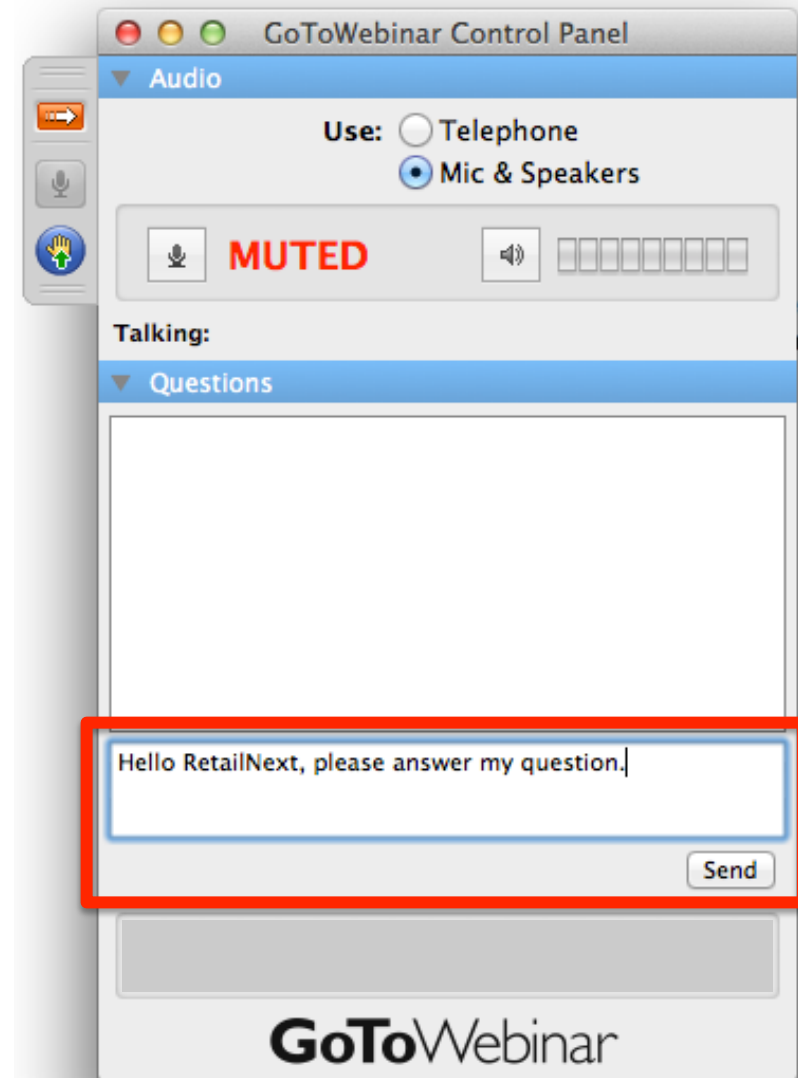
Ways to ask questions during the webinar

## DURING THE WEBINAR:

- Everyone will be muted during the session
- Ask questions via chat

## DURING Q&A:

- Ask questions via chat



# INTRODUCING...

Today's Moderator:



**Nikitas Magel**  
*Manager, Content Marketing*

Today's Presenter:



**George Shaw**  
*Vice President, R&D*



# AGENDA SLIDE

- Introduction to Predictive Analytics
- Predictive Analytics for Retail
  - Examples
  - Predictive vs. Descriptive Models
  - Retail Store Simulation
- Recap
- Q&A

# PREDICTIVE ANALYTICS

An Introduction



# PREDICTIVE ANALYTICS: THE WHY

- *Why* do retailers need predictive analytics?
  - Competition is fierce with shoppers having more places to shop
  - Building a loyal customer base is difficult
  - Testing change is normally costly, time-consuming, and inefficient
  - The omnichannel needs of shoppers can be met more quickly

Retailers can use analytics data to predict shopper intent based on past behavior and choices

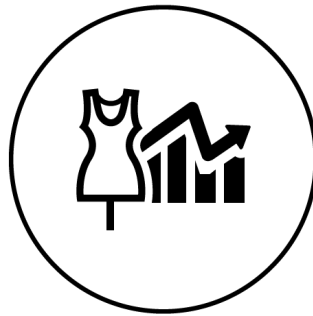


# PREDICTIVE ANALYTICS: THE WHAT

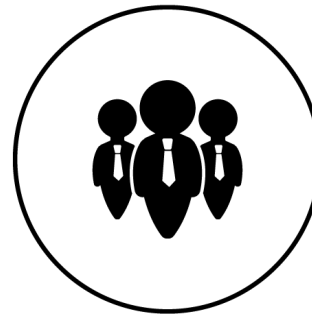
RetailNext enables a variety of predictive abilities



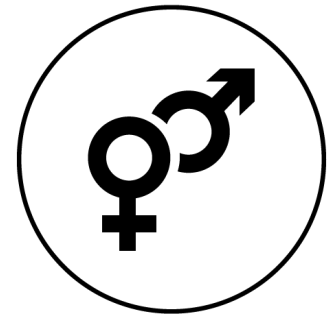
Store-level KPI  
Analysis



Fixture-level  
Analysis



Staffing  
Optimization

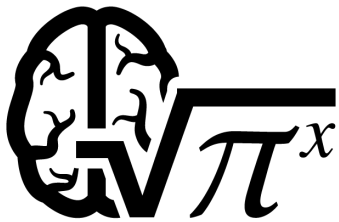


Demographic-  
specific Analysis

# PREDICTIVE ANALYTICS: THE HOW

- Predictive Analytics vs. Data Mining
  - Predictive analytics makes predictions *about the future*
  - Data mining searches for *currently existing* patterns
- Two Kinds of Models:

Predictive

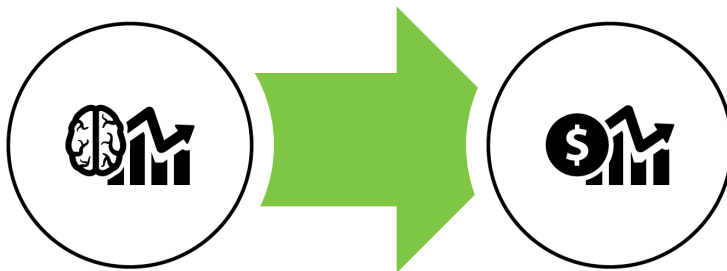


&

Descriptive



- In retail, we collect data to predict future outcomes like sales or conversion





# RETAILNEXT PAVES THE WAY

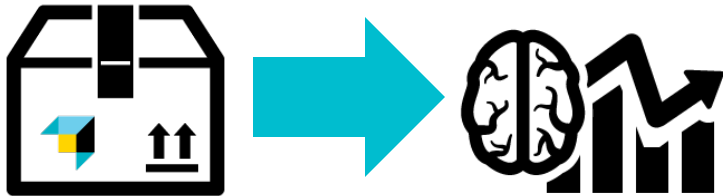
Towards predictive analytics

RetailNext lets retailers analyze and visualize massive amounts of diverse retail data

Movement patterns

POS transaction records

Demographics



- Using the data that RetailNext collects and generates, retailers can drive predictive analytics

# PREDICTIVE ANALYTICS

In the Retail Industry



# AN EXAMPLE: NETFLIX



- Netflix attempts to predict movies you'll like, so they can make helpful suggestions, starting with user ratings.



User ratings are used to build mathematical model to capture preferences

Based on user ratings Netflix attempts to suggest movies you're likely to enjoy

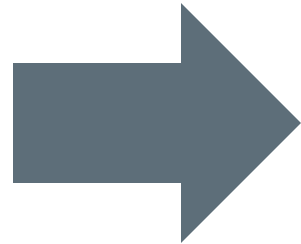
$$r_{u,i} = \text{agg} r_{u' \in U} r_{u',i}$$

$$\text{simil}(x, y) = \cos(\vec{x}, \vec{y}) = \frac{\vec{x} \cdot \vec{y}}{\|\vec{x}\|_2 \times \|\vec{y}\|_2} = \frac{\sum_{i \in I_{xy}} r_{x,i} r_{y,i}}{\sqrt{\sum_{i \in I_x} r_{x,i}^2} \sqrt{\sum_{i \in I_y} r_{y,i}^2}}$$

# AN EXAMPLE IN RETAIL

Predict length of a queue based on traffic at front door—simple. But we can do even more!

Factor in more data to further improve predictions about queues, serviced selling areas, or restocking



- Use data-driven predictions to make store adjustments to improve customer experience and increase sales/conversions

# PREDICTIVE VS. DESCRIPTIVE MODELS



- Predictive Model
  - Mathematical model used to predict outcomes
  - Netflix example, retail example

$$r_{u,i} = \text{agg} r_{u' \in U} r_{u',i}$$
$$\text{simil}(x, y) = \cos(\vec{x}, \vec{y}) = \frac{\vec{x} \cdot \vec{y}}{\|\vec{x}\|_2 \times \|\vec{y}\|_2} = \frac{\sum_{i \in I_{xy}} r_{x,i} r_{y,i}}{\sqrt{\sum_{i \in I_x} r_{x,i}^2} \sqrt{\sum_{i \in I_y} r_{y,i}^2}}$$

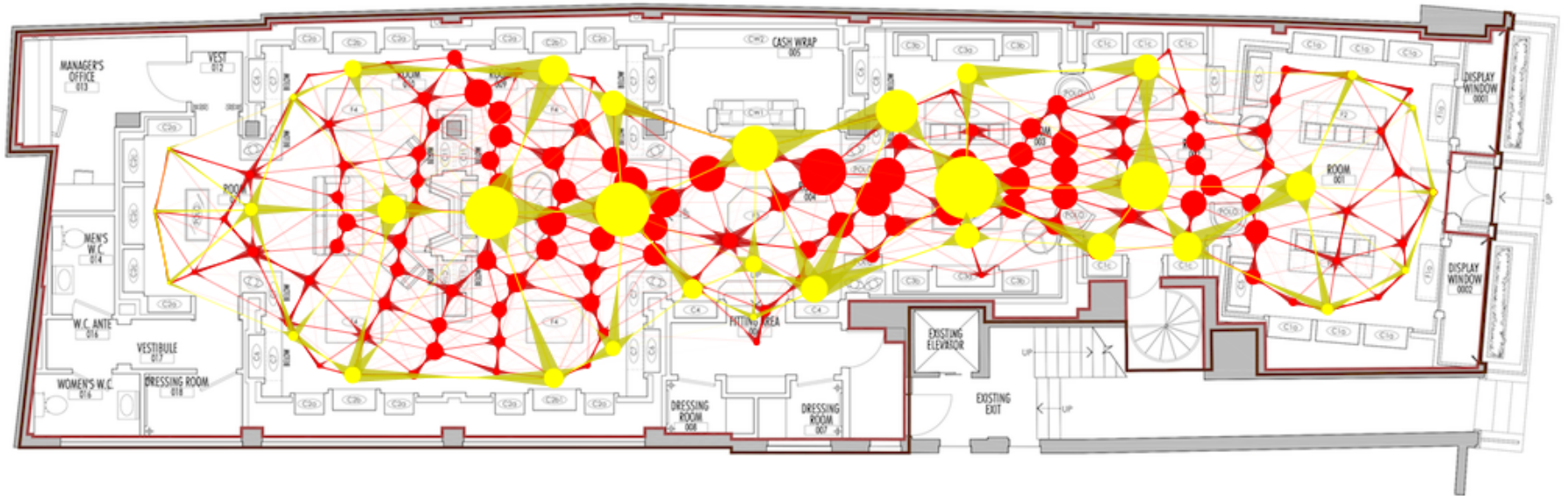


- Descriptive Model
  - Simulation



# RETAIL STORE SIMULATION

Validate simulated data using current analysis tools



# RETAIL STORE SIMULATION

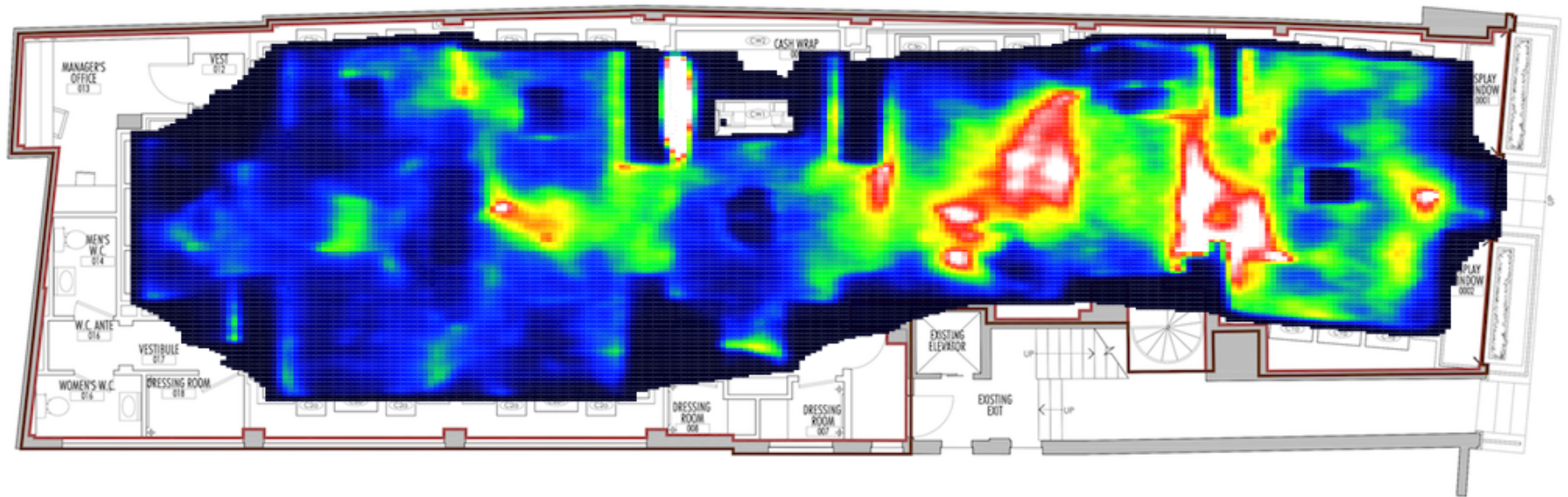
Agents move through store as real customers would



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# RETAIL STORE SIMULATION

Building intelligent models of in-store behavior from real data





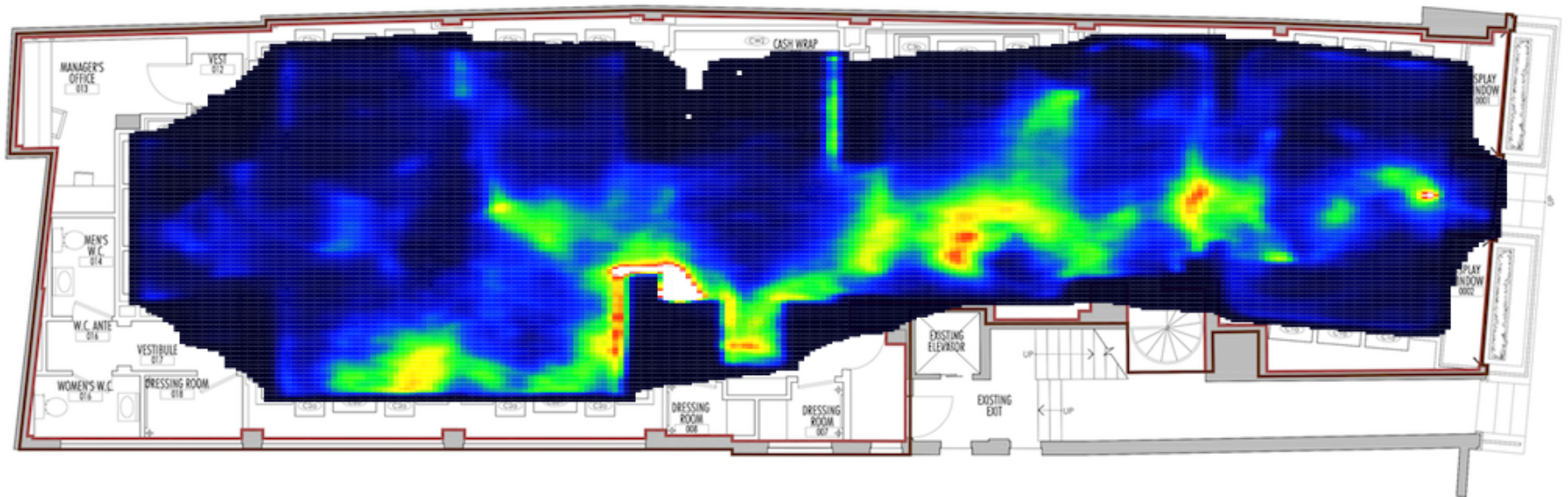
# MAKING CHANGES

Using the validated model, make changes and evaluate the results



# STORE SIMULATION

Make changes to store layout



# STORE SIMULATION

Make changes to store layout



# RECAP

What can predictive analytics do for retailers?



# QUESTIONS RETAILERS CAN ANSWER

RetailNext enables a variety of predictive abilities



- **Store-level KPI analysis**

- Model relationship of KPI's to overall traffic and flow using real data
- "How do different traffic patterns throughout my store affect the metrics I care about like sales and conversion?"



- **Fixture-level analysis**

- Modify merchandising and measure results on flow, dwell, item-level conversion
- "How do my merchandising decisions affect traffic to fixtures? How do these different fixtures relate to each other and how can I understand these complex relationships?"



- **Staffing optimization**

- Model associate behavior, interactions with customers
- "What if we greet every customer at the door? What if we greet nobody?"



- **Demographic-specific analysis**

- Model male/female and other demographic-specific behavior and optimize for each
- "Is this layout effective for 30 year old female tourists from Japan?"

# QUESTIONS?



# THANK YOU



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**RetailNext**  
Comprehensive In-Store Analytics

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