Ahold Delhaize and Shortest Track

Creating Intelligent Customer Relationships

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Ahold Delhaize USA

- Ahold Delhaize USA ($43bn) accounts for about 60% of Ahold’s global sales

- Key US brands include Stop & Shop, Giant, Hannaford, Giant/Martin’s and Peapod

- All brands hold a No. 1 market position in 70% of the areas they serve

- Food Lion has a No. 2 share in 30% of its markets.

- Overall, Ahold Delhaize USA holds approximately a 19% market share, almost 2 times any other retail competitors
The Challenge of Today’s Pace of Change

Consumers and competitors are evolving with adoption of digital technologies

- Customer expectations & behaviors are changing fast
- Demand for value, experiences and inspiration increases

Digital in Retail
- Digital technologies are addressing the entire business
- Change is accelerating
- AI technologies open up new opportunities to improve business efficiency and effectiveness

Competition surging ahead
- Peers’ pace of engagement accelerates through investments & partnerships, for example:
  - Walmart – jet.com, Microsoft, Google
  - Kroger – Home Chef, 84.51, Instacart+Unata, Ocado
- Amazon and Alibaba connecting the internet and brick & mortar
ADUSA is committed to promoting healthy eating

The increase awareness of health and nutrition is shifting shopping patterns

- Meeting customers’ evolving needs
- Healthy fare is great for business
- Customers and communities good health

Over the past 5 years our brands have seen a 10% growth in produce sales

Healthier eating for a growing number of customers means few ingredients and more organic choices
Our Actions and Results

Professional advice - our dietitians

Our US brands offer nutrition education, consultations, store tours, community programs and more with their award-winning dietitian programs. Our Registered Dietitians offer personalized, professional support for people who have questions about what foods are right for their individual or family needs.

Nutrition navigation with Guiding Stars

Guiding Stars nutritional navigation system in 2,000 of our stores takes the guesswork out of shopping and makes it easy to find foods with more nutrition per calorie. Consumers often find label reading cumbersome and time consuming, so with this system we make nutrition labeling more user-friendly and help consumers make informed food choices.

Personalized health

When shopping online, Albert Heijn customers can now see how much sugar, fiber, salt, protein, saturated fat, calories and carbohydrates they recently bought. The online services suggests alternative products that have fewer of any of the nutrients so that customers can tailor their shopping choices.
Ahold Delhaize USA, e-commerce sales growth is projected to top 20% in 2019 and 30% in 2020…

The Peapod e-grocery service generates about $1 billion in sales and 6 million orders annually, serving customers and stores via 26 e-commerce fulfillment centers.

Investments in single sign-on, integrated loyalty programs, endless aisles, more personalization, more localized assortments, media partnerships and the expansion of click-and-collect service across the East Coast.
Integrated Omni-channel platform for each Brand

2-3x Higher spend by omnichannel customers than in-store only customers
Customer at the center through HyperPersonalization

From

Transactional relationship with the customer dependant upon manual processes

To

An unparalleled relationship with your customers with reciprocating loyalty driving incremental sales enabled by analytics to provide more personalised interactions
A Proprietary Digital Ecosystem for Each Brand

- 600m Digital Coupons Clipped
- 77% Sales made by identifiable customers
- ~6m Annualized online grocery orders
- 3.2m Mobile App downloads
- 15,250 Products Rated for Guiding Stars
- 9 Scan & Go Pilot Stores
- 23% In-Store Kiosk Engagement
- 500m Email/Push Communications
- ~50% Items in cart from digital personalization tools
Fully Integrated Personalization

Personalized Online/Offline

“AUSA’s offers are for products I care about and at prices that are too good to pass up!”

Online: Targeted Digital Advertisement

“I can count on AUSA to deliver relevant and valuable content to me wherever I am.”

Ecommerce: Intuitive Product Recommendations

“AUSA product recommendations are spot on! They know me better than I know myself.”

Relevant Online/Offline Content

“My interactions with AUSA brands are always relevant and timely.”

Content Offers

“Welcome fall and falling prices!”

“Load to card offers and threshold offers based on past purchase activity.”

“AUSA product recommendations are spot on! They know me better than I know myself.”
Data & Insights underpin the Purpose & Strategy
Competing on Analytics - The Size of the Prize is significant

The total potential value of Advanced Analytics is massive. Some organizations have achieved 10x ROI

**Indirect Value**
seen by companies transforming into analytics driven organisations

- 25-50% faster to insights
- 20-40% Better at course correcting
- 3x More trusted by customers
- 10-15x ROI on investment

Companies Differ on their Ability to Compete on Analytics

- Analytical Leaders: 32%
- Analytical Challengers: 27%
- Analytical Laggards: 41%
Areas for Analytics Innovation & Acceleration

Recognize & Understand
- Omni-channel Measurement
- Mobile Optimization
- Digital-Audience Targeting
- Consumer Journey Analytics

Understand & Personalize
- Personalization Engine
- Content Decisioning
- Recommendation Engines
- Adaptive Machine Learning

Monetize
- Attribution & Media-Mix
- Loyalty Monetization
- Social-Influencer Valuation
- Predictive Customer LTV

Optimize
- Real Time Experimental Design
- Purchase-Intent Simulation
- Concept-Testing
- Offer Elasticity
Data Science delivers analytic horsepower

**FORECASTING MODEL**

E-Commerce inventory forecaster-created 3500 XG-Boost models to predict-inventory availability with 85% accuracy. Model standardized for use in future scenarios.

**APriori Recommender**

This algorithm mines association rules from transactions and feeds these rules to a predictive model to recommend complimentary products for the website.

**Targeting Engine**

Collaborative Filtering to determine product/customer associations, to target campaigns, then Linear Programming to determine offer/customer optimizations to manage budget and issuance totals.

Example Illustrations
AI Enables Deeper – and Accelerated Intelligence

- AI techniques help to facilitate Cooperative Learning – which combines Deep Learning with Federated Data Architectures
- Key Benefits & Capabilities:
  1. Create “Core Models” that can be quickly trained to address multiple business problems
     - Lift & Shift approach transfers existing learning to new use cases creating incremental learning
     - Incremental learning accelerates speed to operationalization and performance
  2. Model can be initially trained on simulated data – diminishing the reliance on specific or secure data sets
  3. Share learning across business units without increased integration costs
  4. Improve collaboration across separate organizations without exposing proprietary information or PII
Cooperative Learning - How we do it

Leverage AI to define predictive attributes across two data sets

- Simulated Data facilitates quick-start learning
- Unique attributes are identified in both data sets using deep learning
- Model determines which attributes are predictive in set A – and locates customers in B with similar data patterns

Lift & Shift model to leverage existing learning with different data set(s)

- Execute existing model utilizing different data sets
- For Example
  - Model on 1 store, lift and shift to multiple stores
  - Model for 1 brand, lift and shift to another brand

Generate stronger predictions based on Cooperative Learning output

- Cooperative Learning expands predictive dimensions of Model
- Expanding dimensions boosts predictive accuracy of output
- Accelerates learning and speed-to- operationalization

![Diagram showing Cooperative Learning process](image)
Cooperative Learning - Stop & Shop Case Study

Context
- Desire to define customers that have high propensity for omni-channel shopping
- Support enhanced engagement strategies driven by customer’s preferred or predictive channel propensity
- Initial use case is to define attributes of best omni-channel shoppers and leverage model to define in-store only customers propensity to purchase online

Approach
- Iterative Model – an ensemble of 3 ML and 2 DL – created and trained on simulated shopper data; Resulted in a 0.70 AUC; Developed and trained in < 2 weeks
- Employed Cooperative Learning techniques by training on an expanded data set; Boosted model accuracy by >10%; Completed in 1 week
- Then train models on new data sets to expand channel-specific learning; Expect a 5-15% improvement in model accuracy

Next Steps
- Train model on Stop & Shop data for 1 store; Validate and expand to all Stop & Shop stores
- Conduct Test and Learn campaigns at Stop & Shop, deploy model to entire Brand based on results
- Lift and shift core model to next Ahold Delhaize Brand and repeat process
Cooperative Learning - Enterprise Implications

- Share the model, not the data
- Training models on multiple data sets accelerates access to intelligence by leveraging inherent and incremental learning
- Deliver enhanced predictive accuracy
- Enables cross-partner integration – and improved optimization of intelligence for each
- Organizations get access to better performing solutions than using only their data
- Quick extension of core model to support hyper-personalized predictions of omni-channel behavior, next purchase, promotional propensity, customer journey, etc.
- Possibility to create net-new analytics that leverage omni-channel, while integrating historically secure data sets from health care, private or other proprietary sources
Thank You!