AI in Grocery Retail: Unlocking $136 Billion in Value

Presented by:

Alberto Escalante
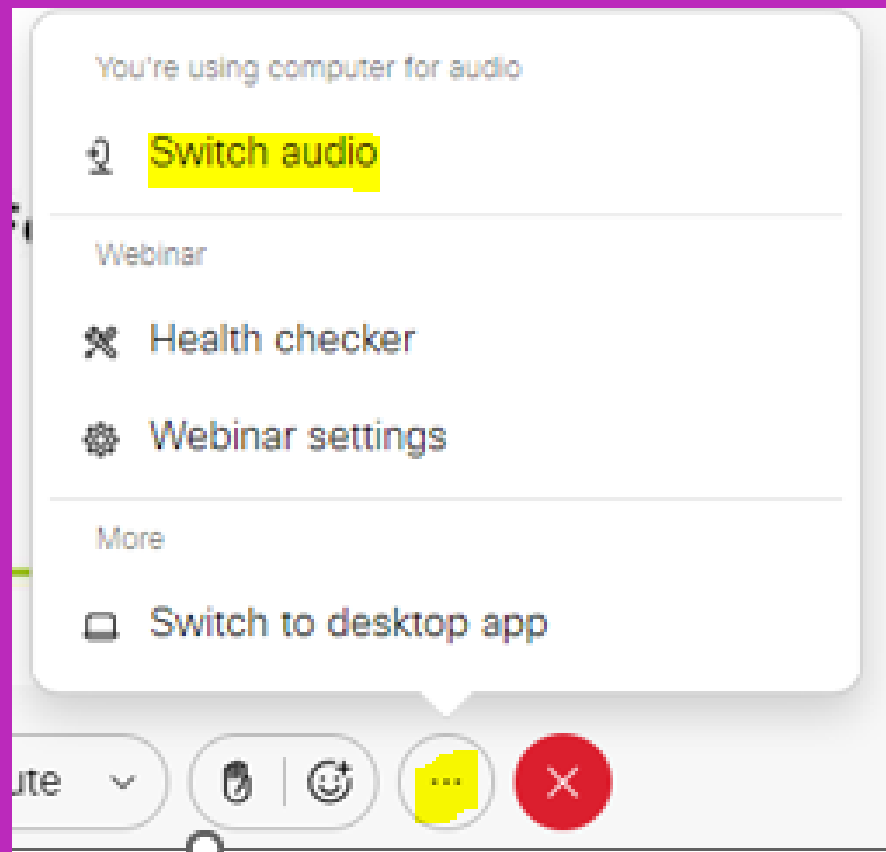**Solution Architect**

Keith Taylor
Director of Solutions

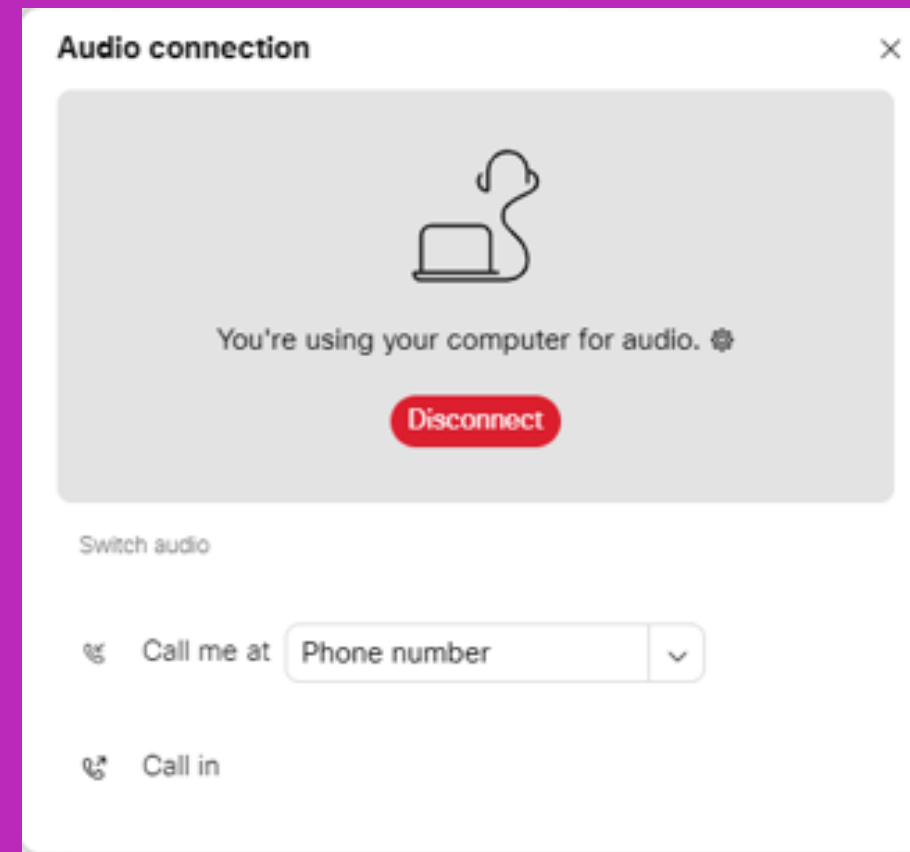**Hosted by: California Grocers Association**

July 9, 2025

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About r4 Technologies

r4 Technologies was founded in 2013 by the original founders of **Priceline**, bringing their proven expertise in extracting value from data and AI to help traditional enterprises navigate digital transformation.

As pioneers of Cross-Enterprise AI, we've spent over a decade developing our proprietary XEM® (Cross-Enterprise Management) platform, which enables organizations to unlock growth opportunities hidden between business silos without disrupting existing systems.

The AI Opportunity for Grocers

The grocery sector in the United States is poised to unlock substantial value through the power of artificial intelligence (AI).

According to industry projections, AI is expected to generate $136 billion in value across the U.S. grocery industry by 2030, with the largest impacts seen in supply chain and logistics ($67.7 billion) and merchandising ($25.7 billion).

Sources: Grocery Doppio. "State of AI in Grocery 2024." 2024

The AI Imperative: Why Now?

The urgency of AI adoption in grocery retail stems from a perfect storm of factors creating both immense opportunities and significant pressures:

- Over 80% of grocery sales are now digitally influenced
- 67% of U.S. grocery shoppers expect personalized experiences
- Food waste remains at 30-40% of our food supply
- Labor shortages continue to plague the industry
- Razor-thin margins make efficiency gains critical

Sources:
1. Deloitte. "The Grocery Divide."
2. KPMG International. "Intelligence Retail: AI-Driven Transformation." March 2025
3. USDA Economic Research Service; NRDC; WWF. Food Waste Research Studies

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Three Takeaways

1 AI Is No Longer Optional—It's Essential for Competition

2 Start Small, Prove Value, Then Scale

3 AI Drives Measurable Business Results

86% of grocery executives view AI as necessary for future competition. This creates urgency to move from "maybe someday" thinking to "we need to act now."

Begin with ONE high-impact use case rather than trying to transform everything at once. This practical approach makes AI adoption feel achievable rather than overwhelming.

Adopting AI isn't just a tech upgrade—it's a proven way to increase sales, reduce costs, and improve margins in grocery retail.

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How AI Technologies Helps Grocers

Personalization

Help new customers that resemble your best-performing stores and customers.

Hyper Local Assortment

Provide product recommendations
To the right locations,
At the right time,
To the right customers,
And at the right price.

Yield Management

Match supply based on customers of look-a-like's and optimize inventory for maximum yield while slashing waste.

Unlocking Untapped Stream of Customers

SNAP Smart Food Program – SNAP/CalFresh beneficiaries – bringing them directly to your stores.

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The Challenge: Personalization

Today's consumers expect highly personalized experiences and targeted recommendations. With 67% expecting personalized experiences and 75% preferring personalized product recommendations, brands must adapt to a new era of consumer micro-targeting.

Sources:

McKinsey & Company. "The Value of Getting Personalization Right-or-Wrong-Is Multiplying."

Accenture. "Global Consumer Pulse Survey."

EY. "Future of Loyalty Programs Report." 2025

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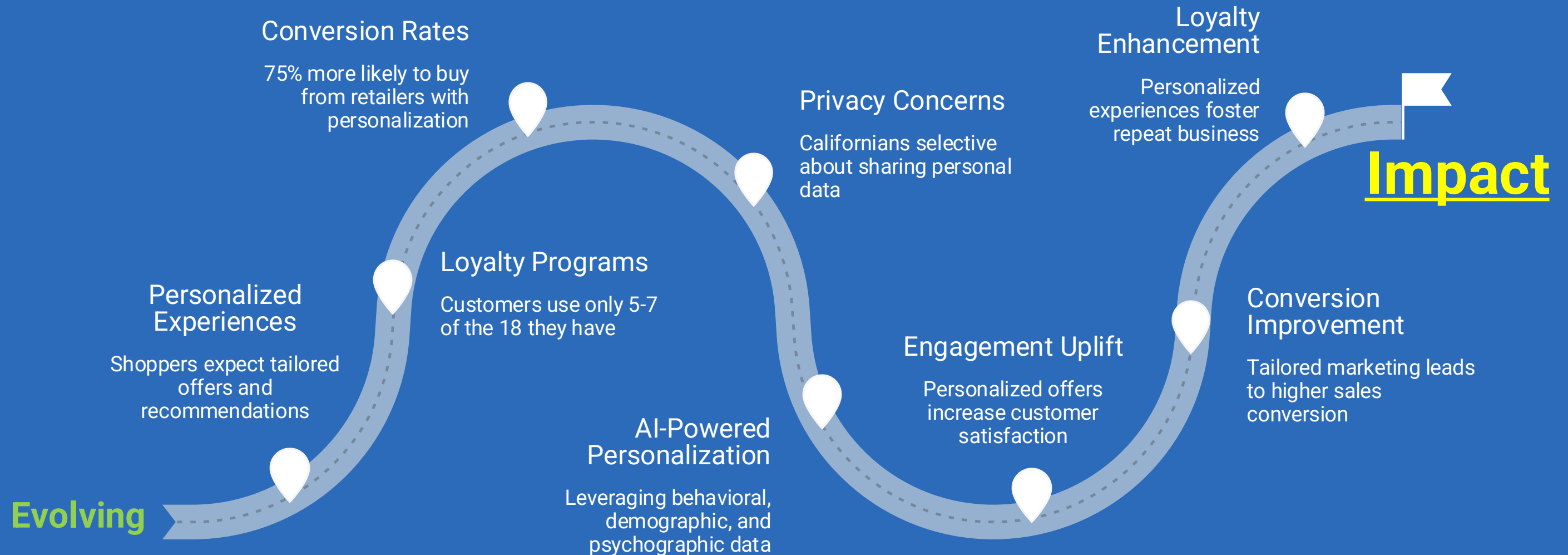# Personalization

- **Traditional Approaches**
  - Reliance on basic loyalty cards.
  - Limited CRM Systems
  - Email Marketing Campaigns.
  - Static Weekly Circulars
  - Limited Personalization

- **Personalized Recommendations**
  - Product Recommendations
  - Personalized Offers
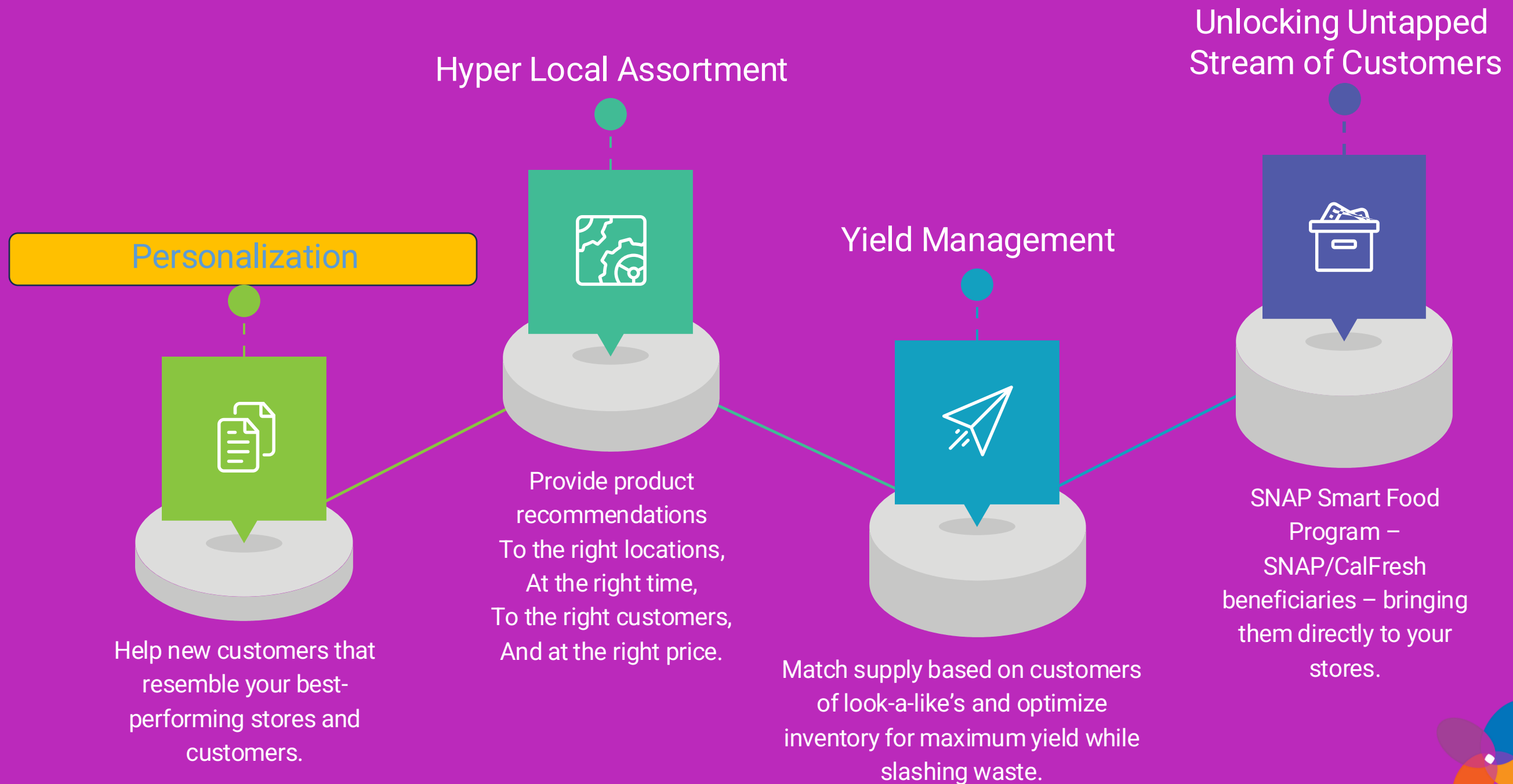 - Personalized Messaging

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One Single Data Model To Feed Consumer Lifecycle

Conversion Rates

75% more likely to buy from retailers with personalization

Loyalty Enhancement

Personalized experiences foster repeat business

Privacy Concerns

Californians selective about sharing personal data

Impact

Loyalty Programs

Customers use only 5-7 of the 18 they have

Personalized Experiences

Shoppers expect tailored offers and recommendations

Conversion Improvement

Tailored marketing leads to higher sales conversion

Engagement Uplift

Personalized offers increase customer satisfaction

AI-Powered Personalization

Leveraging behavioral, demographic, and psychographic data

Evolving

- **Hyper-personalization through multimodal AI analysis, compliant with California privacy laws.**

- **Generating real-time offers based on comprehensive shopper profiles and predictive models for next-best-action recommendations.**
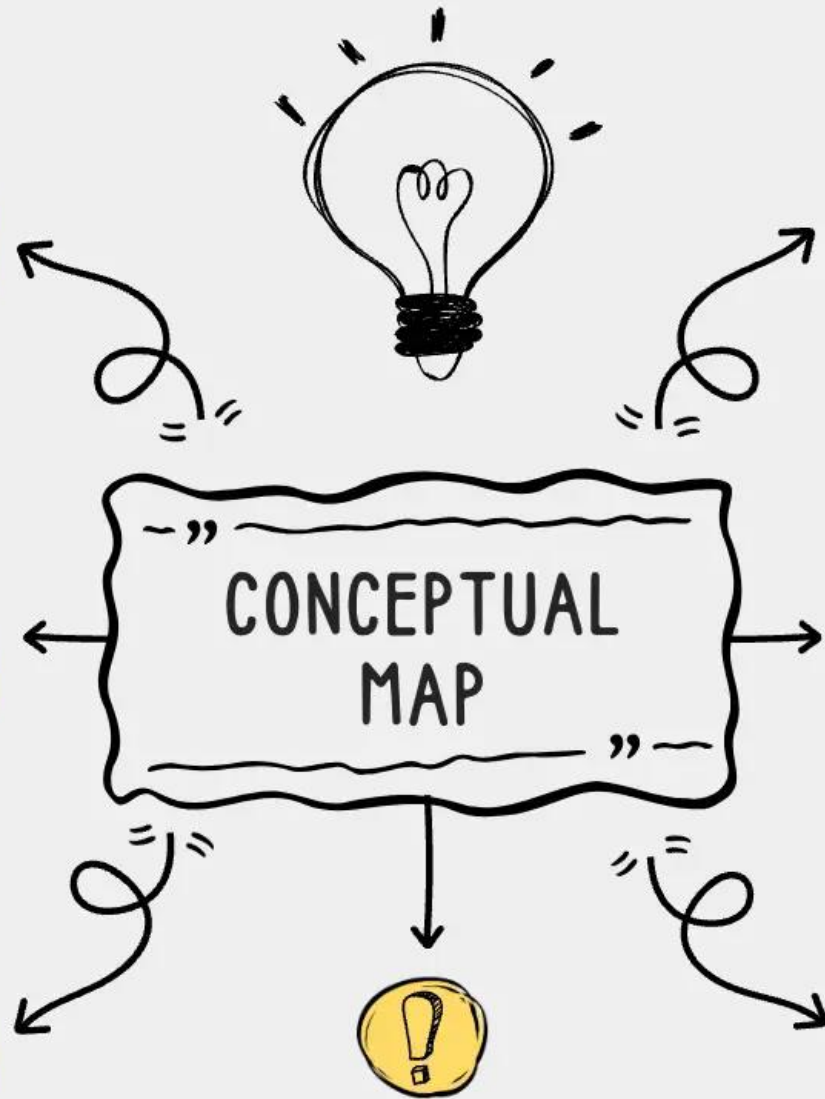
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Current Approaches - Localized Assortment

- Manual analysis of sales data

- Manual analysis of customer demographics

- Interpretation of competitive insight

- Manual generation of store assortment

The AI Solution - Localized Assortment

| Intelligent Localized Assortments | Multivariate Analysis Engine | Shopping Pattern Recognition | Location-Customized Recommendations | Streamlined Process |

- AI to analyze consumer trends at individual store level.

- Unified view of all customer and location data.
  - Demographics
  - Purchase history
  - Local market trends
  - Etc.

- AI identifies the unique supply and demand patterns to:
  - Optimize Inventory
  - Reduce out of stocks
  - Reduce waste

- AI identifies the right products to the right locations, at scale.

- Right products to the right locations, for the right customer, at the right price.

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Yield Management

How to get the most dollars out of the people, places and things in your business unique marketplace?

- **Forecast Demand**

- **Supply Chain**

- **Grow Sales**

Yield Management

Data Processing – Money in Your Data

Unlock the money trapped in data siloes.

Forecast Demand - What Products are Needed, By When

AI systems process hundreds of variables simultaneously—weather patterns, local events, promotional schedules, social media trends, and economic indicators—to create incredibly accurate demand forecasts.

Optimize Supply Chain

Out of stock reduction, inventory optimization, dynamic restock notifications, getting the right product in the right places.

Grow Sales

Increased basket size, grow your customer Base, optimize price

AI Benefits for Grocers

1 Increased Store Traffic

2 Higher Sales and Volume to Drive Profitability

3 Improved Velocities Reducing Food Waste

4 Enhanced Shopper Loyalty

5 Operational Efficiency and Cost Savings

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Operational Excellence

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The Opportunity: AI SNAP Smart Food Program

The USDA and States are deploying this innovative AI program designed to stretch existing SNAP customer funds, drive retailer/supplier profitability, and lower food waste.

Participation is simple and leverages the existing couponing systems you already have. The program uses predictive analytics to identify when stores are likely to have excess inventory of healthy, fresh foods. Instead of waiting for these products to spoil, the system proactively matches this surplus with SNAP recipients who would benefit from access to these items.

The Problem: SNAP programs nationally are under pressure, reducing store foot traffic, making the hunger crisis even worse

The U.S. Govt spends $250B/year on food assistance.

Yet, 47MM Americans are food insecure.

and 40% of food grown in the US is thrown away.

The result: Billions lost, communities underserved, and a worsening cycle of hunger and waste.

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The Solution: Smart Food Program Matches Supply with Demand to End Hunger and Waste

In conjunction with the USDA and over 12 States:

Created by r4 Technologies, the **Smart Food Program** is a USDA-authorized, AI-driven solution that identifies surplus food and delivers targeted discounts to SNAP recipients.

Through public-private collaboration, the program integrates seamlessly with existing couponing systems, enabling retailers and producers to offer targeted incentives that increase store traffic, improve inventory turnover, and expand access to nutritious, affordable food nationwide. With over 42 million SNAP participants nationwide representing $112.8 billion in federal funding, this AI application creates a win-win-win: participants get healthier food at better prices, retailers reduce waste, and communities benefit from improved nutrition outcomes.

Key Benefits for Grocers

1. Increased Store Traffic

2. Higher Sales and Volume to Drive Profitability

3. Improved Velocities Reducing Food Waste

4. Seamless Integration / Easy to Implement

5. Enhanced Shopper Loyalty

6. Community Impact – Help Solve Hunger

California CalFresh (SNAP) by the Numbers

In federal FY 2024, it helped*:

- 5,380,000 California residents, or 14% of the state population (1 in 7)

- more than 55% of SNAP participants are in families with children

- more than 36% are in families with members who are older adults or are disabled

- more than 30% are in working families

- SNAP participants in California received $12.22 billion in benefits in 2024

- Average SNAP benefit in FY2024 for each household member per month - $189

- Average SNAP benefit in FY2024 for each household member per day - $6.22

- Californians send 11.2 billion pounds of food to landfills each year, according to the state**

*SNAP Fac sheet California

**Department of Resources Recycling and Recovery

IDENTIFY SMART SURPLUS → CONNECT DIRECT TO CONSUMERS → MORE FOOD ON TABLES AND LESS WASTE

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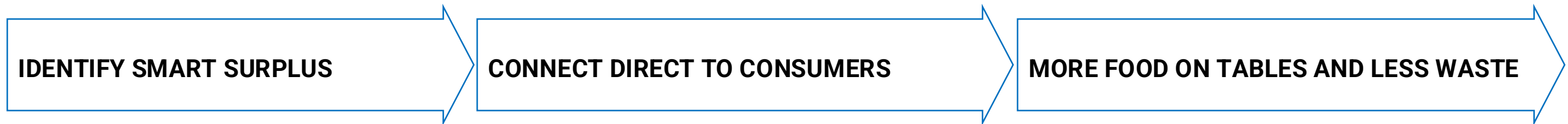
States and Federal Policymakers are driving innovation

Governments and policymakers are backing the Smart Food Program as a **scalable**, **AI-powered solution to improve food access, reduce waste and strengthen local economies** – without requiring additional taxpayer-funded handouts.

Government-Backed Innovation in Action:

Delaware Leads the Way

- First state to pilot the program, using **$1.5M in ARPA funding**.
- Backed by **state and federal leaders**, including the White House, USDA, and local agencies.
- Designed for **nationwide expansion**, with Hawai'i preparing to launch next.

USDA Endorsements

- Part of the Biden Administration's **Hunger, Nutrition & Health Agenda**.
- Recognized as **a public-private partnership** to fight food insecurity while reducing waste.
- **USDA Regional Administrator:** "We are delighted to support this innovation."

State-Level Economic & Social Impact

- **More purchasing power for SNAP households**, driving healthier food choices.
- Retailers and farmers benefit from **optimized demand**, reducing food loss.
- **Fiscal responsibility**—leveraging AI to increase efficiency without increasing costs.

r4 CEO Paul Breitenbach and Delaware Lieutenant Governor Bethany Hall Long at Launch Event in a ShopRite store in Wilmington Delaware, July 10, 2024

The SNAP Smart Shopper App 2-3x More Food for the Same Budget
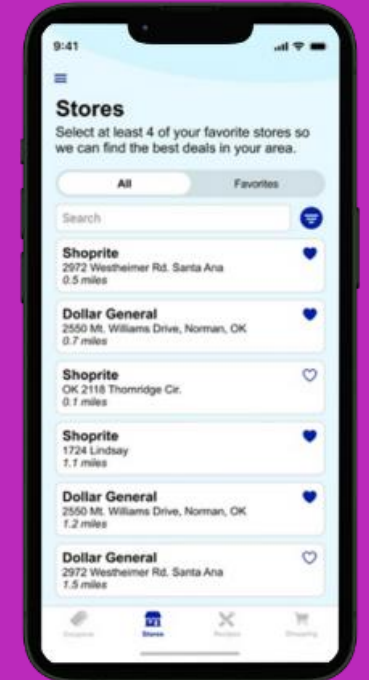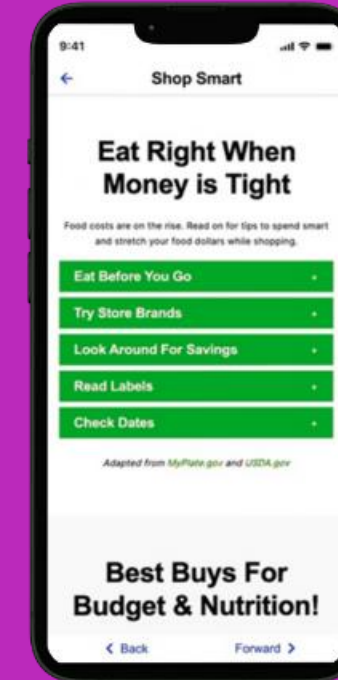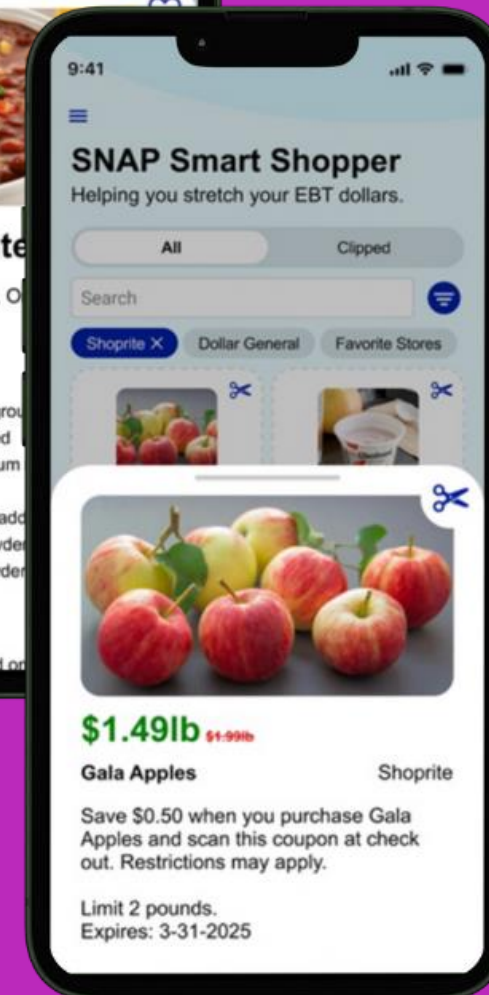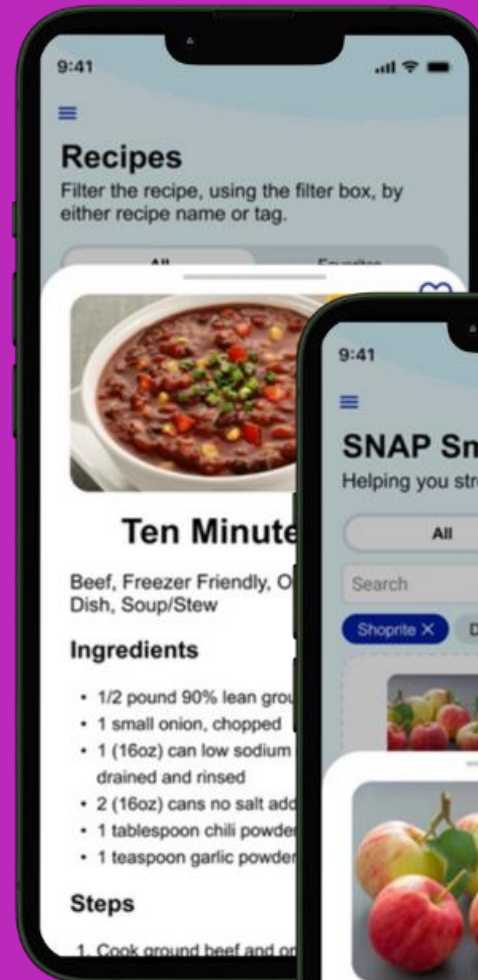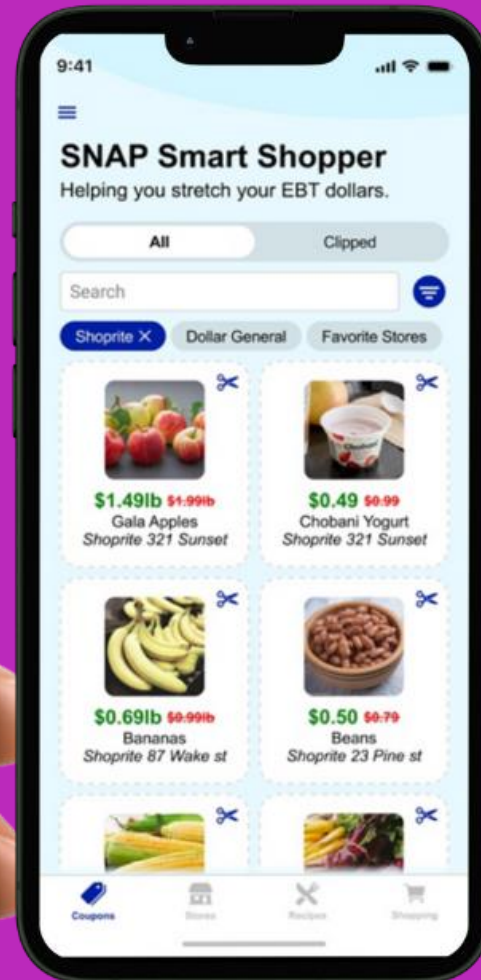
Special discounts, engages consumers, and encourages healthy choices

SNAP Smart Food Program is Complementary to Foodbanks

Increased Participation from Producers, Growers, Manufacturers increases the amount of food flowing to retailers, increasing available food for Foodbanks and SNAP recipients.

The Smart Food System predicts extra capacity far up the supply chain and directs it into the system which increases and optimizes the overall supply to food banks and food recovery.

More food available to the most vulnerable consumers comes at a low cost, profit driven premium to retailer partners; while also reducing food waste impact.

This creates a win-for-all: Producer / Growers, Retailers, SNAP Users, Food Banks

Predicts Supply and Demand
To drive retailer profit and reduce waste

More Suppliers Means
More Food for Food Banks

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Implementation Best Practices

Start Small and Build Incrementally

Pick one specific use case where you can demonstrate clear ROI. Prove the value, then reinvest the returns into expanding your AI capabilities.

Form Strategic Partnerships

Partner with AI vendors who provide cloud-based solutions that integrate with existing systems. Find partners who understand grocery retail specifically.

Ensure Transparency and Employee Training

Be proactive about explaining how you use AI and involve employees in the implementation process from the beginning. Show them how AI can make their jobs easier, not replace them.

Thank you!

Please contact Alberto Escalante or Keith Taylor for more information on how to leverage AI at your organization.

r^4 Technologies

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