



Autonomous Merchandising & the Quest for Shelf Planning Excellence

June 2024

Agenda

Introductions - Today's Presenters

Market Trends

Future of Automation

Closed loop Retailing

Conclusion



Presenters



Andrew Button

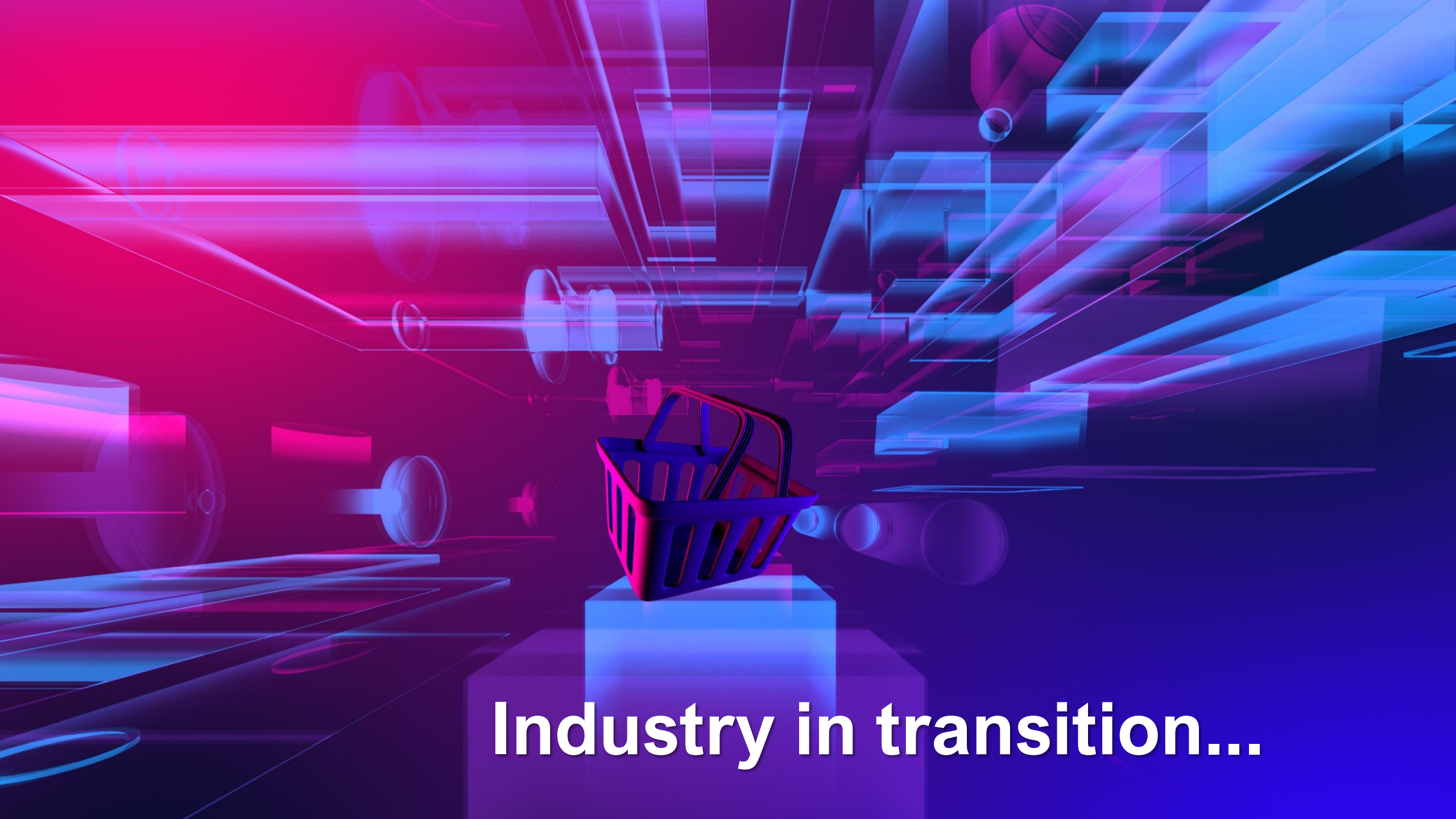
Head of Category
Planning Practice



Todd McCourtie

VP Product
Management & Space
Assortment

Market Trends



Industry in transition...

Key **technology** trends over next 5 years

We predict continued acceleration in the following areas

ARTIFICIAL INTELLIGENCE



REINFORCEMENT LEARNING

- Learn from fewer interactions
- Handle more variables
- Better decision in real time



GENERATIVE ADVERSERIAL NETWORKS (GANs)

- More realistic image, videos & text
- Able to simulate market conditions or complex environments to train other AI systems



SELF SUPERVISED LEARNING

- Reduced need to label datasets
- Easier to integrate multimodal data



EXPLAINABLE AI

- Clearer more intuitive explanations of AI decisions
- More ability for users to feedback and interact



FEDERATED LEARNING

- Improved ability to train on decentralized data sources



NATURAL LANGUAGE PROCESSING

- Deeper understanding of context, idioms & nuances
- More seamless across modalities

OTHER TECHNOLOGIES



INTERNET OF THINGS

- IoT market in retail expected to be 94BN in 2025 up from 28BN in 2019
- Increasing IOT devices such as smart shelves, RFID tags, environmental sensors collect real time information providing more holistic insight



EDGE COMPUTING

- Brings compute closer to source, enabling faster decision making and real time analytics



COMPUTE

- Substantial improvement in compute speed and reduced costs, enabling more real time, improved prediction, more scalable through
 - Advances in semi conductors,
 - Quantum computing,
 - Neuromorphic computing
 - Advances in parallel processing and cooling technologies

Key market trends over next 5 years

We predict continued acceleration in the following areas

CUSTOMER TRENDS

ECOMMERCE & OMNI CHANNEL

- Grocery sales in US projected to reach 257 BN in 2024 and surpass \$422 BN by 2028*

HEALTH & WELLNESS

- ~ 20% of US and UK consumers and ~30% in China see personalized health products using biometric data
- ~67% of consumers tried to consume more protein in 2023

RETAILER TRENDS

HYPER LOCALIZATION

- 76% of consumers prefer to buy in their own language
- Localized assortment

ALGORITHMIC RETAILING

- Automated action without requiring human involvement connecting AI directly to execution

DYNAMIC PRICING

- Enabled by smart shelf tags, potential to increase share of the 78% of customers that seek best deals
- UC San Diego study estimated 3% gross margin opportunity to reduce food waste in fresh by 21%

INTERNALIZATION

- Retailers continue to invest more in cloud infrastructure, with global cloud compute expected to rise 16.2% YOY
- BI technology advances have made it easier to scale robust, customized reporting solutions which will increasingly be powered by generative AI connected to enterprise data

COMPOSABLE SOLUTIONS

- Retailers are looking for APIs and microservices that can add additional value to their BI applications

USER EXPECTATION

REAL TIME INSIGHT

- Insights expected to refresh daily at minimum

SUB SECOND RESPONSE

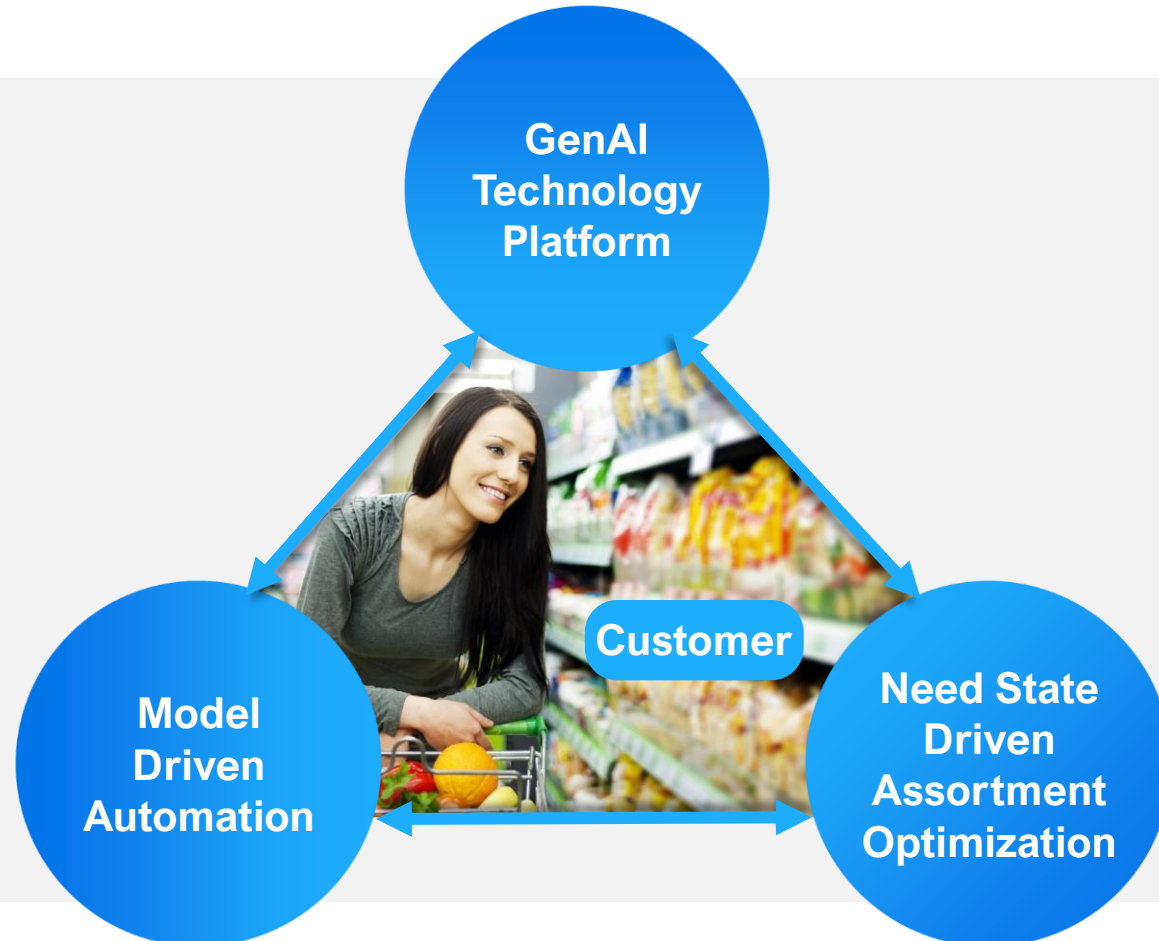
- Advances in memory technology integrated into most BI applications has shifted user expectations for speed to get simple metrics

Future of Automation

Customer Centricity

Merchandising and Marketing Solutions

Enabling Retailers and their CPG partners to win with their most valuable customers and grow revenues



Drive a **culture of customer-centricity**, leveraging customer and other retailer data

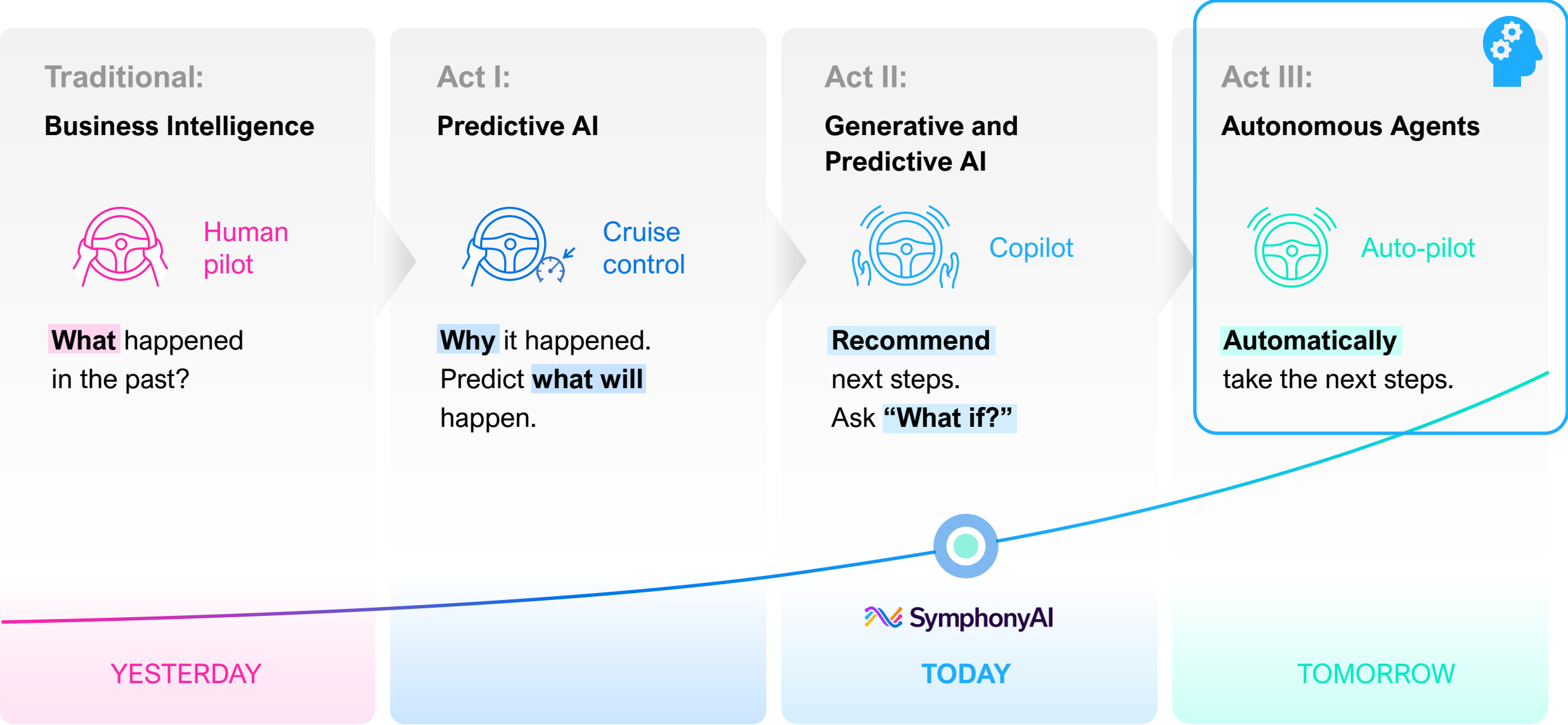


Provide customer **intelligence, insights and prioritized opportunities for action**; execute through **personalized marketing**



Deliver automation at scale, model based, to drive Retailer and their CPG's: efficiently, strategically and financially

AI strategy and execution leads the market in Retail CPG, using predictive and generative models today



What is Autonomy?

Machine Learning to automate tasks that wouldn't require human intervention; not replacing but enhancing



Autonomous Agents



Auto-pilot

Automatically

take the next steps.



Proactive AI agents aim to reduce **repetitive** and **mundane** job tasks, allowing employees to focus on more engaging and complex activities



Copilot agents can handle tasks such as:

- Monitoring emails,
- Automating data entry,
- Managing IT help desk services.

Automation Facts...

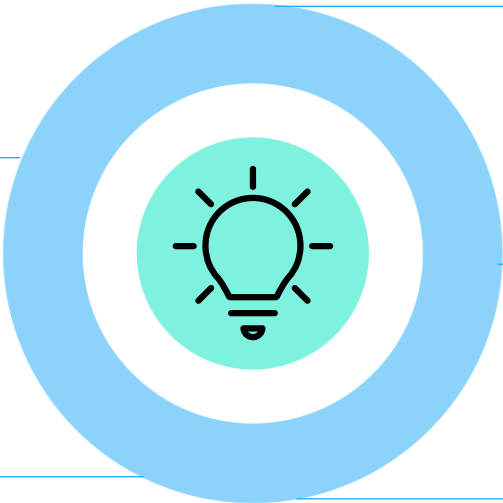
With Store Specific planograms, the demand for more localized assortments and planograms have driven planogram volumes to new levels



50% improvement in efficiency through process enablement



Automate up to 90% of planogram tasks



Measurable improvement in product availability



Up to 3X reduction in category reset cycle times



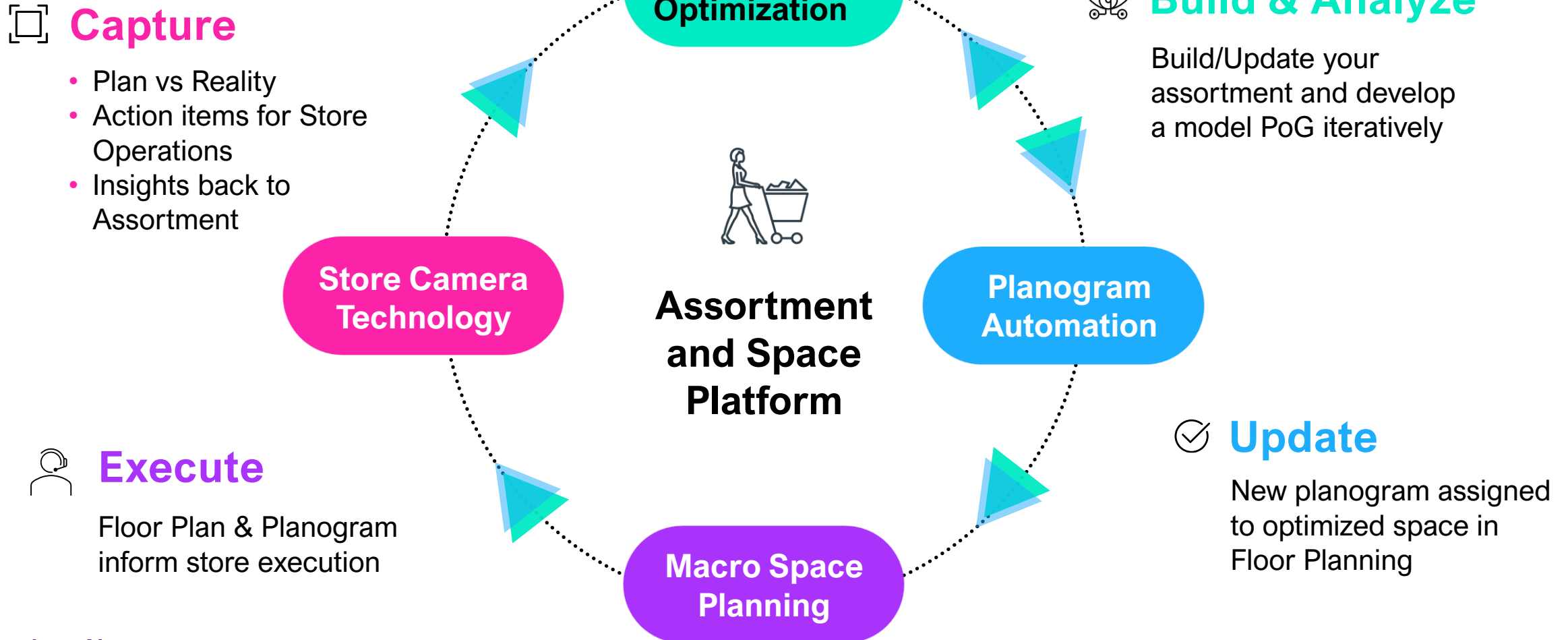
Model driven blocking vs. Rule and script creation

Closed Loop Retailing

Automation and Autonomy

Build a vision of Connected Store from Assortment to Execution

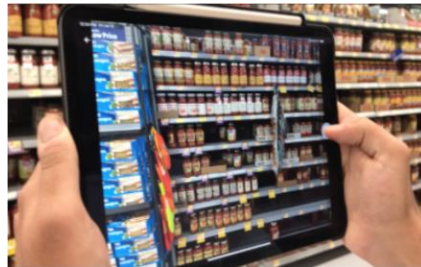
Closed Loop for compliance and OSA- Future Vision



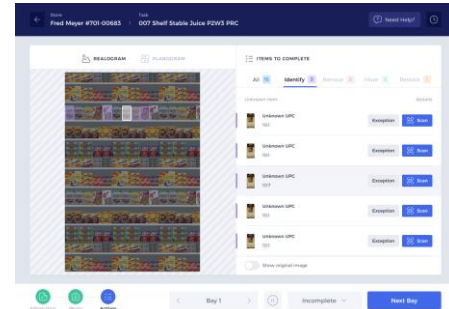
Robotic and
handheld
technology



Camera
Technology



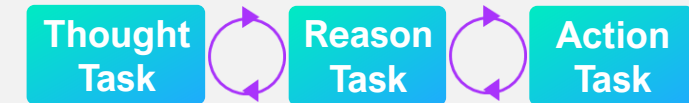
Near Real-Time
insights



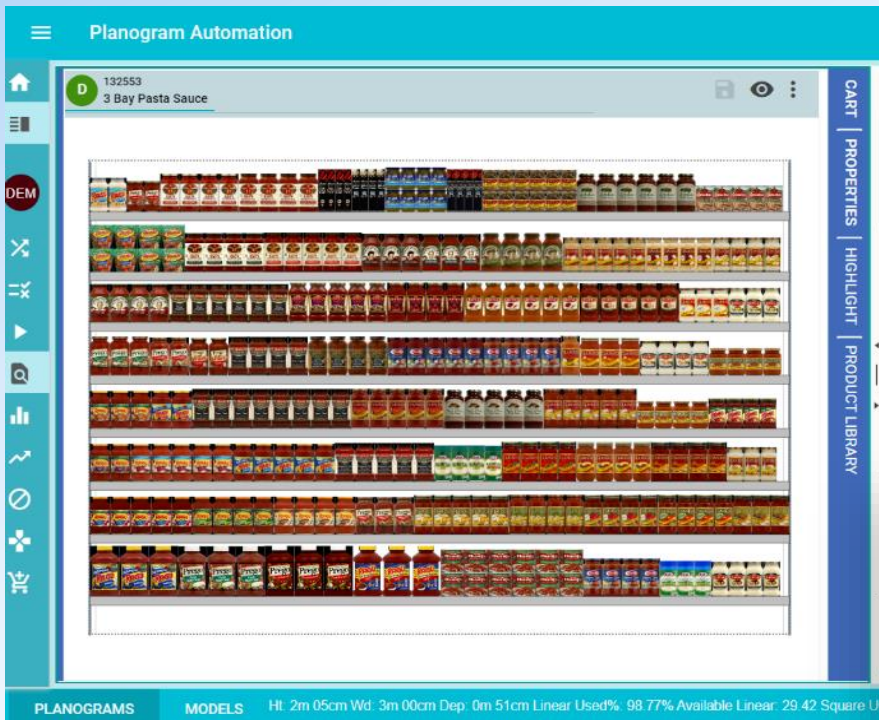
A prompt that goes into the GenAI model

GenAI Agent

**Suggests next steps
to get to the ideal answer**



Answer



Review Planogram At A Glance View

3 Bay Pasta Sauce(132553)
Size: 205x300x51
White Space % :1.23

3 Bay Pasta Sauce(132554)
Size: 205x300x51
White Space % :1.35

3 Bay Pasta Sauce(132555)
Size: 205x300x51
White Space % :1.11

3 Bay Pasta Sauce(132556)
Size: 205x300x51
White Space % :1.11

PAI

How Can I help you today?

Provide me a list of Items that have less than 5 Days of Supply

Provide me a list of Items that have more than 180 Days of Supply

Provide me a list of Items that have less than 180 Days of Supply

Provide me the Points of Distribution by Market

Store Number	UPC	Days of Supply
1929	3120000066	3.41
2944	1480000229	3.55
1929	3120000191	4.68
1929	3120000061	3.27

PAI

Add Item 7321400948 next to 2100061531 on all POGs

Great! To confirm, you want to add Item 7321400948 next to 2100061531 on all PlanogramIds, is that correct?

YES

Operation completed successfully

Type your message here

Question

A prompt that goes into ChatGPT

Answer



Conclusion



Automation is moving to a **Model based**, Closed Loop Process - **Insights to Action**



Essential for Consumer Centric, localized assortments - **Speed to Market**



Key to establishing OSA and near real-time decisions driven by in-store technology and future state
Autonomous Agents





Thank you