

Collaborative Marketing Driven by Advanced Analytics Summit

Ensuring Your Successful TPM-TPO
Retail Execution Journey



The Journey to On-Shelf Availability Performance

Mondelez International

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Today's Agenda

1. What is On-Shelf Availability (OSA)?
2. Overview of Mondelez International
3. Challenges to Measure and Improve OSA
4. Our Journey to OSA Performance
5. Q&A



Intros & Bios



- Been at Mondelez for 13 years
- Roles in DSD Logistics, Distribution, Warehousing, Transportation, Continuous Improvement, Supply Planning, Customer Development
- Been with OSA Team since June '15
- Located in East Hanover, New Jersey



- Been at Mondelez for 22 years
- Responsible for technology and information solutions to drive process improvement around retail execution, sales force optimization, and on-shelf availability
- Located in East Hanover, New Jersey

Intros & Bios



- Extensive experience in full lifecycle project delivery in the sales & marketing space
- Deep expertise in consumer products, commercial business processes, analytics, and information management
- Based out of St. Louis

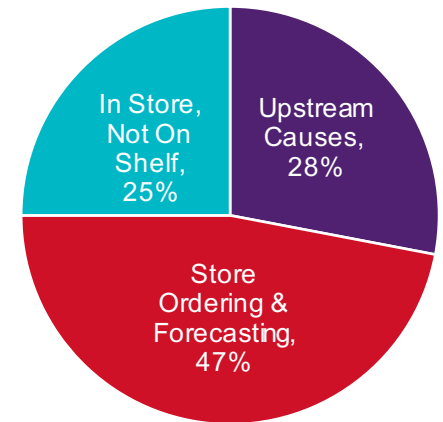


- Research experience in empirical modeling and statistical analysis
- Knowledge expert in operations and supply chain design, planning, and management
- Work published in management journals
- Based out of Boston

What is On-Shelf Availability (OSA)?

- On-Shelf Availability (OSA) is the ultimate supply chain product availability to consumer.
- A closely related concept is retail out-of-stock (OOS), which can provide more insight into root causes.
- The retail industry average for OOS in 2002 was 8.3%, with 72% attributed to retail store practices.
- On average, lost sales due to OOS cost manufacturers \$23M for every \$1B in sales.

OOS Root Causes*



OOS Type	Occurs When	Potential Root Causes
Store-Based	Store is out of inventory	<ul style="list-style-type: none"> • Data Accuracy • Forecast & Order Accuracy • Replenishment
Shelf-Based	Shelf is empty but there is inventory in store	<ul style="list-style-type: none"> • Shelf Capacity • Shelf Implementation • Shelf Management



* A Comprehensive Guide To Retail Out-Of-Stock Reduction In The Fast-Moving Consumer Goods Industry by T. W. Gruen and D. Corsten.



Overview of Mondelez International

- One of the world's largest snacks companies with net revenues of approx. \$30 billion
- 100,000 employees in 165 countries around the world
- #1 position globally in Biscuits, Chocolate, and Candy; #2 position in Gum
- Many iconic brands, with 7 topping \$1 billion: Cadbury, Cadbury Dairy Milk, Milka, LU, Oreo, & Trident
- > 85% of revenue generated from fast-growing snacks categories
- Nearly 75% sales from outside North America
- > 70% of US revenue generated from Direct Store Delivery (DSD) business

Iconic Brands



Core Company Strategies



Challenges to Measure and Improve OSA

- 1 **Measure OSA: Manual Audit Method**
- 2 **Measure OSA: Point of Sales (POS) Estimation**
- 3 **Measure OSA: Perpetual Inventory System**
- Improve OSA**

Challenges

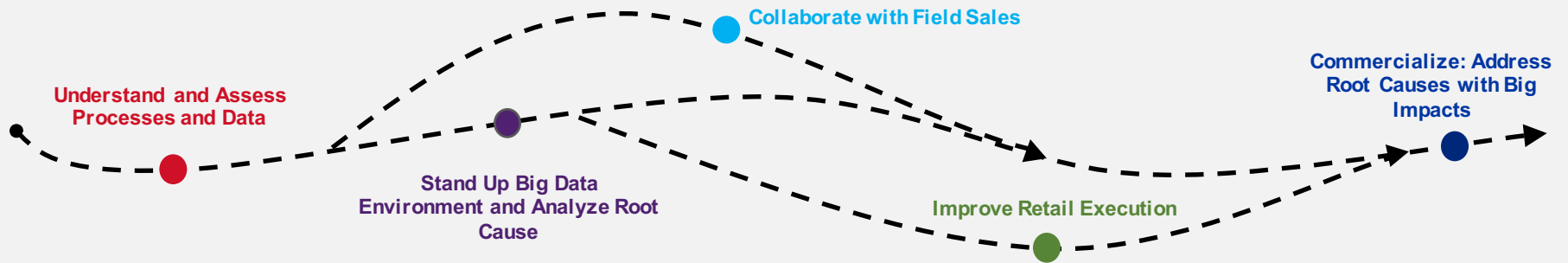
- Labor intensive
- Very expensive
- Not scalable
- Based on historical sales patterns
- Depend on POS accuracy
- Not work well for low-velocity items
- Lack of on-hand accuracy (below 50%)
- Phantom or hidden inventory
- Data accuracy
- Forecasting and ordering accuracy
- Replenishment processes
- Planogram compliance
- Shelf management

POS estimation has become a viable method with more available POS data in recent years.

It requires coordinated effort in supply chain and retail execution to improve OSA.

Our Journey to OSA Performance

To improve OSA performance, we have a number of strategic initiatives and projects



Understand and Assess Processes and Data:

- Gain insights into the processes and data requirements to measure and improve OSA

Stand Up Big Data Environment and Analyze Root Cause:

- Stand up Hadoop platform for big data discovery and analytics
- Identify high-level root causes for out-of-stock events at retail stores

Collaborate with Field Sales:

- Retailer HQ account teams and field sales need to align on planograms, delivery and merchandizing schedules

Improve Retail Execution:

- Small batch test and learning activities with field sales reps

Commercialize:

- Alert sales reps and enable them to take quick corrective actions
- Improve order quality by suggesting order quantity based on advanced demand forecasting

Understand and Assess Processes and Data to Measure OSA

Background

MDLZ analyzed On-Shelf Availability (OSA) for 150 items at 3 large retailers across DSD and warehouse service channels.

Objective: quantify the lost sales revenue due to out of stock (OOS) events.

Analysis Performed

1. Used OOS events & projected lost sales data provided by third-party POS provider
 - Calculated by proprietary algorithm based on historical sales trends
2. Calculated OSA rate:
$$\frac{\sum Total Sales Units}{[\sum Total Sales Units + \sum Projected Lost Sales Units]}$$
3. The average OSA rate is 92-93%.

Issues and Gaps

- Root cause for each OOS event was not determined
- Scalability: Excel analysis required significant manual work
- OOS algorithm accuracy has not been verified and not consistent
- Availability of OOS data from third-party POS providers in flux

Root Cause Identification and Insights Development

1. Prepare and Understand Data

alteryx



2. Identify Root Causes and Build Decision Rules



SCPIR—
Allocation



Branch—
Logistics



SCPIR—
Other



Branch—
Fill Rate



No Order



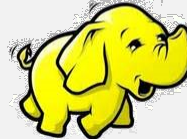
Order Quantity /
In-store Issue

3. Develop Algorithm



Hortonworks

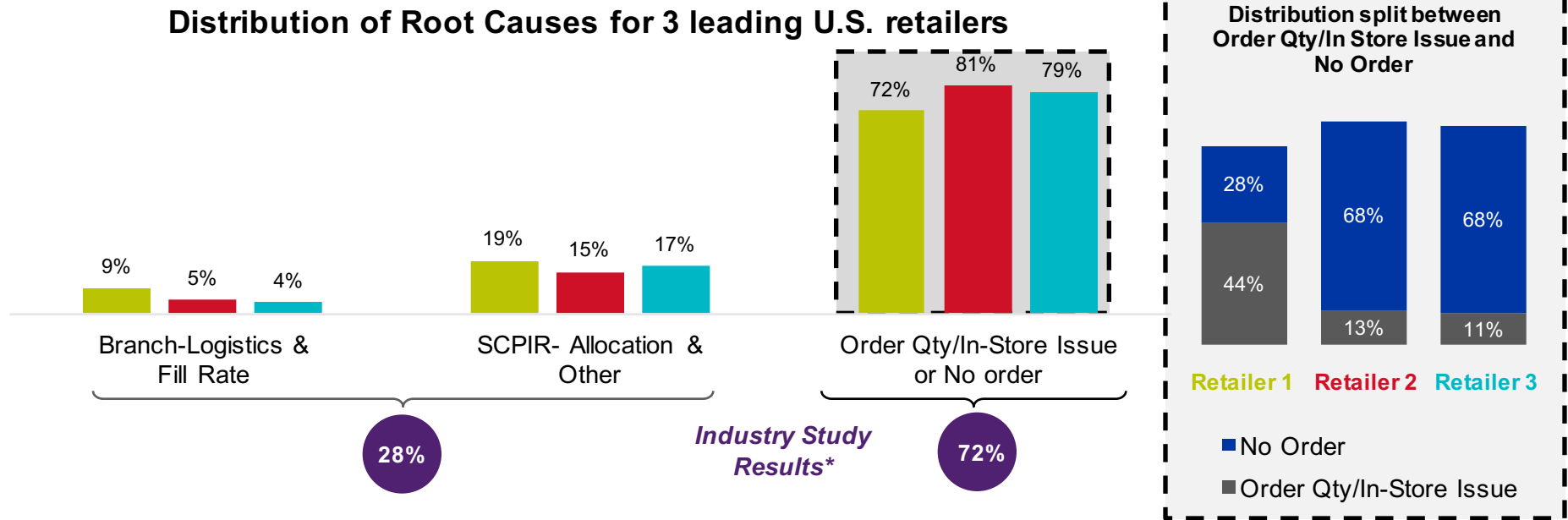
hadoop



4. Gain Insights with Visualization Tools



Results Identify Opportunities to Increase Collaboration Among Sales & Supply Chain



- When evaluating the two largest root causes, our findings prove to be consistent with the market. The majority of root causes relate to execution activities that are addressable.
- When we dig deeper into order challenges, the results are different. The results in our analysis are not comparable because the POS vendors use different algorithms and methods to measure OOS and lost sales.



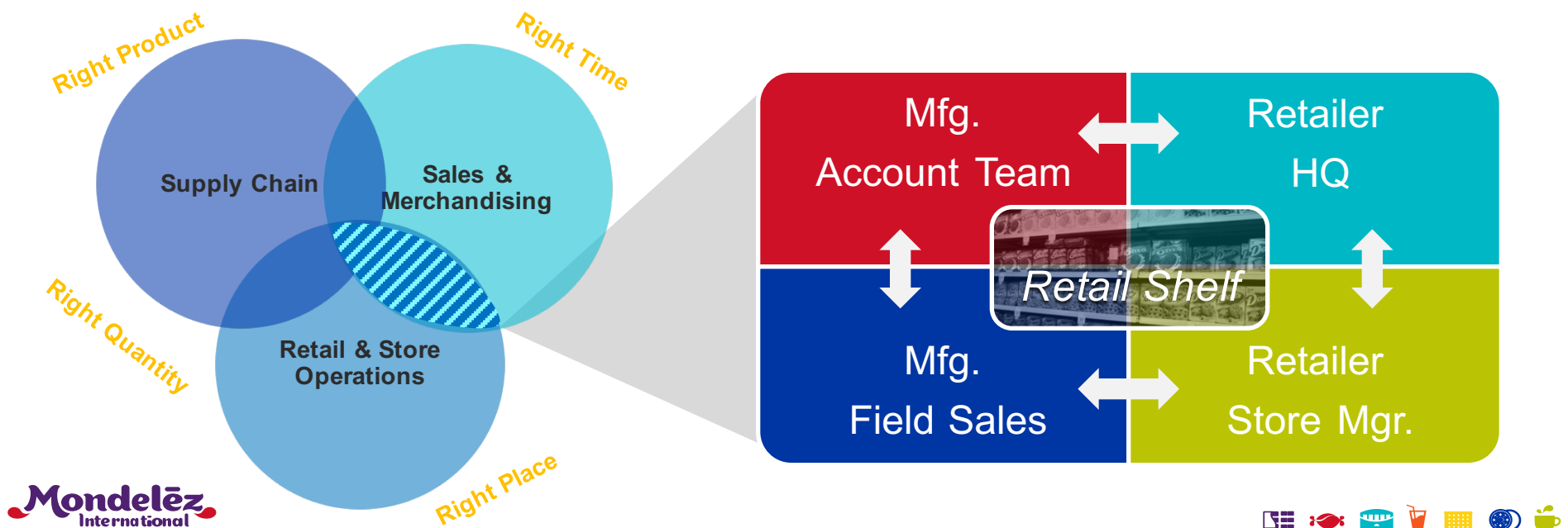
* A Comprehensive Guide To Retail Out-Of-Stock Reduction In The Fast-Moving Consumer Goods Industry by T. W. Gruen and D. Corsten.



Collaborate with Field Sales

On-Shelf Availability Pillars

- OSA is cross-discipline & cross-functional
- It takes collective effort **within** and **between** disciplines to improve performance
- It also requires collaboration between retailer and supplier to improve OSA
- Data has become the common language



Improve Retail Execution



Scope: Test alerts in multiple phases by gradually increasing the number of items and stores. In Phase 3, 1,032 alerts were sent to 49 items and 561 stores. This represented \$160,000 in lost sales.

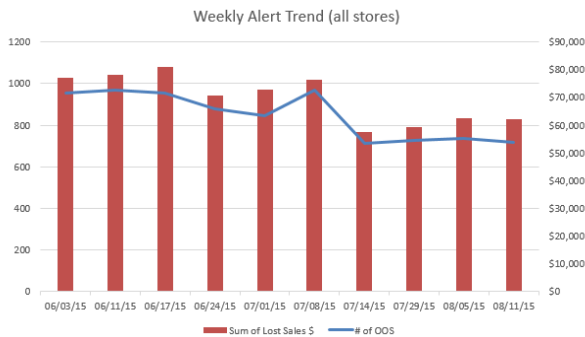


Objective: Test alert accuracy and gain acceptance from field sales reps to use alerts to enhance efficiencies and improve OSA at retail stores.



Results: The results highlight an opportunity to further improve alert accuracy and great potentials to expand alerts to more items and stores.

Test Alerts



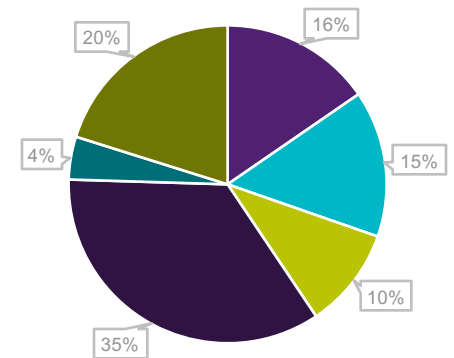
Responses & Actions



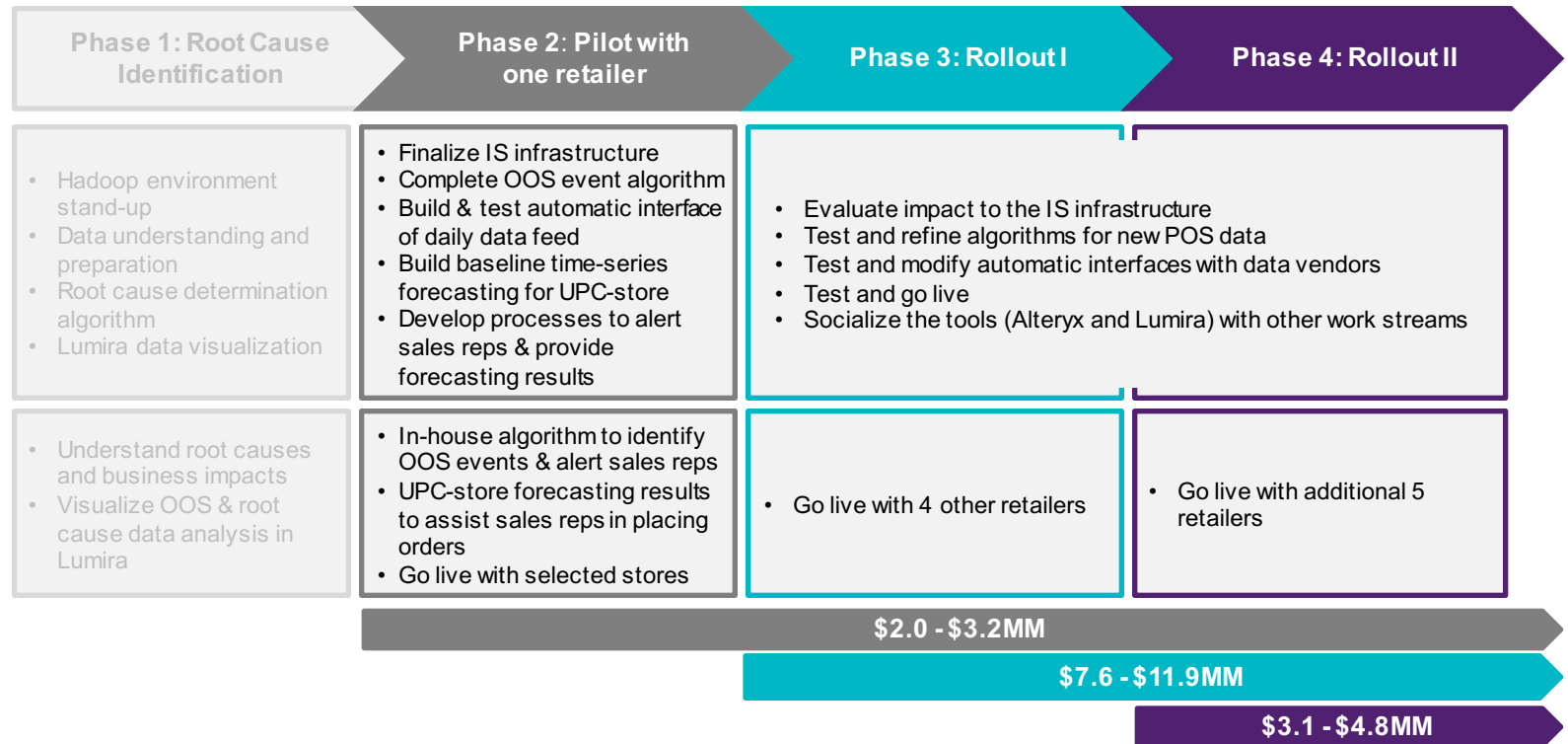
Rep Responses

- **Alert Valid, Product Ordered**
 - Product is not present on shelf and SR places order in Touch
- **Alert Valid, Shelf filled from Backroom**
 - Product is not present on shelf but SR re-stocks from Backroom
- **Alert Valid, Product on Allocation or Branch Cut**
 - Product ordered but had not been delivered to store or only limited quantities
- **Alert Invalid, Product on Shelf**
 - Product is present on shelf
- **Alert Invalid, Item not on POG**
 - Product is not on POG for this store

Evaluation & Improvement



Commercialize Solution to Top 10 U.S. Biscuit DSD Retailers



Questions?





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Thank You!
Eric, Mike, Tim, and JR