Artificial Intelligence In Retail: What Now?
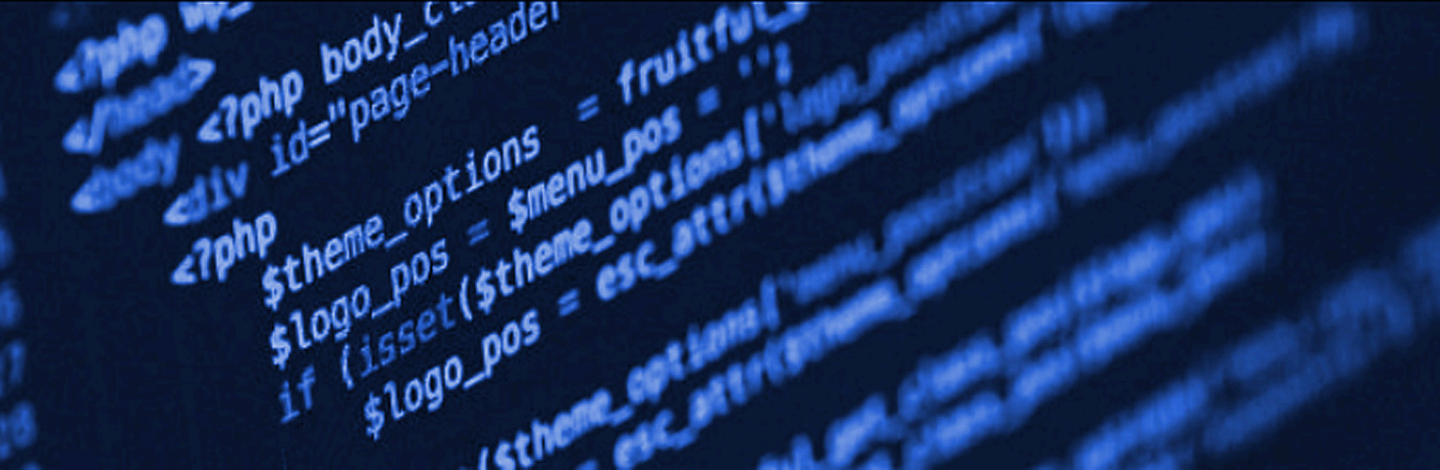
October 2022

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RSR Partners

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Research Overview

- In recent years the retail marketplace has been buffeted by a seemingly endless procession of mega-challenges: economic and political uncertainty, new and powerful competition, the rise of digitally empowered consumers, pandemics, and global climate change.

- As a result, the world in which retailers operate isn't *predictable*, but increasingly *dynamic*.

- Retailers seek to use *new data* gathered from outside the theoretical four walls of their businesses to develop *scenario models* –in order to better position the business's processes and assets to respond much more quickly to changes in the marketplace that may occur.

- *Greater agility* is the strategic objective.

- But retailers haven't forgotten about *operational efficiency*. They also seek the ability to *optimize operations* and to put *actionable information* into the hands of operators.

- *Agility* and *optimization* aren't mutually exclusive. In this study, we wanted to see how retailers view AI's ability to help them achieve both objectives.

Survey Respondent Characteristics

RSR conducted an online survey from August 2022 and received answers from 100 qualified retail respondents.

- Who Responded:

C-level (e.g., CEO, CFO, COO, CIO)	46%
Vice President	17%
Director/Manager	35%
Staff and other	2%

- Retail Presence:

USA	100%
Canada	43%
Latin America	22%
UK	21%
Europe	20%
Middle East & Africa	6%
Asia/Pacific	8%

- By Vertical:

Fast Moving Consumer Goods	45%
Fashion & Specialty	14%
General Merchandise	20%
Hard Goods	18%
Vertically Integrated Brand	3%

- By Performance:

Better than average ("Retail Winners")	52%
Average	37%
Worse than average ("Laggards")	11%

Key Learnings

A. More that one-half of retailers believe **that insights derived from AI-enabled analytics** will have a profound effect in the next three years on:

- **Demand forecasting & merchandise planning**, and
- **Supply chain planning & management**

… But these findings are driven by over-performers (Retail Winners)

B. The greatest challenges retailers are concerned about that drive interest in AI-enabled analytics are:

- That **consumer demand changes rapidly**, undercutting the ability to place big buys and lower costs
- The need to to **detect supply chain disruptions** as early as possible and react more quickly

… But Winners worry that somehow the competition is more nimble in its response to disruptions

C. The single most important new data type that retailers want to analyze? **Real-time supply chain alerts** (unexpected supply shortages, bottlenecks, critical inventory situations, etc.)

D. While concerns on the supply side of their businesses clearly are top-of-mind for retailers, many see opportunities to use insights derived from AI on the **customer side** as well, including:

- **optimizing** omni-channel order fulfillment
- **personalizing** the value proposition to consumers
- and **improving** the digital customer experience
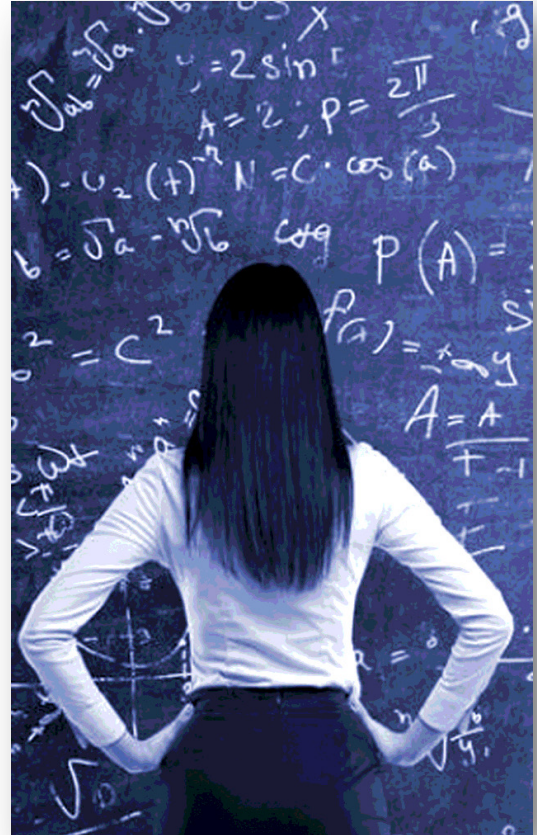
De-Mystifying AI
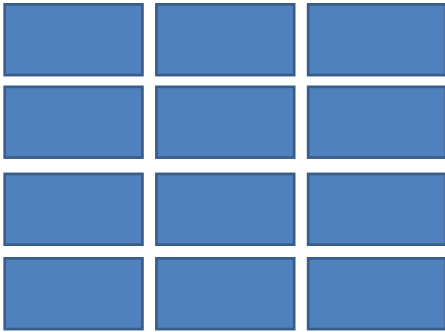
Structured Data
- *Transactional* data from *internal operational systems*
- Structured via pre-defined data models or schemas.
- Analyzed with *rules*
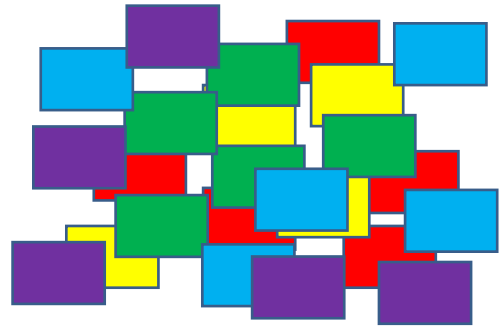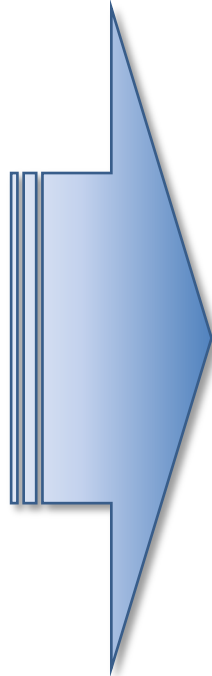
Unstructured Data
- Comes from *non-transactional* sources *inside and outside of the company*
- Text, images, voice, video, bitstreams, digital signals
- Analyzed with *algorithms* that can *detect patterns* in data and use them to develop *predictive models*

AI-Enablement: It's A Winner's Strategy…

'Strongly Agree' With The Following Statements

■ Winners ■ Others

AI-enabled analytics will fundamentally change how retailers will perform demand forecasting and merchandise planning the next 3 years
- Winners: 71%
- Others: 44%
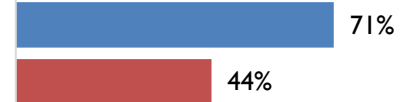
AI-enabled analytics will have a profound effect on supply chain planning and management in the next 3 years
- Winners: 62%
- Others: 48%

AI-enabled analytics will have a dramatic impact on how retailers interact with consumers in the next 3 years
- Winners: 54%
- Others: 42%

And More Winners Already Have The Skills On Board ...

Thinking about your company's AI readiness, which statement that most closely describes your position now?

■ Winners ■ Others

	Winners	Others
We have data scientist(s) on board that have competency in mathematical data analysis and modeling tools and techniques	40%	25%
We have bought a software package from a vendor that has AI/ML embedded	27%	27%
We have committed budget to developing our own in-house data scientist capabilities	27%	40%
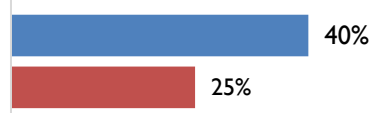
But Actual Adoption Is Still In Its Early Days

What is your company's current level of experience when it comes to AI-enabled analytics?

■ Winners ■ Others

Response	Winners	Others
We have multiple, mature AI-enabled analytics projects and use them to drive capabilities that differentiate us from our peers	27%	8%
We have a comprehensive strategy in place for using AI-enabled analytics, and are beginning to implement that strategy	25%	19%
We are undergoing education on the opportunities (including some pilot projects)	25%	23%
We aren't doing anything related to AI-enabled analytics	4%	17%

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Supply Chain, Consumers, And Competition
Business Challenges

Winners & Others Agree On <u>Only One</u> Top Challenge: Supply Chain Disruptions

Top-3 Business Challenges That Create Interest In AI-Enabled Analytics
(Selected Differences)

■ Winners ■ Others

Challenge	Winners	Others
We need to be able to detect supply chain disruptions as early as possible and react more quickly	44%	40%
Competitors are nimbler than we are in responding to market conditions	44%	23%
Consumer demand changes rapidly, undercutting our ability to place big buys and lower our costs	40%	52%

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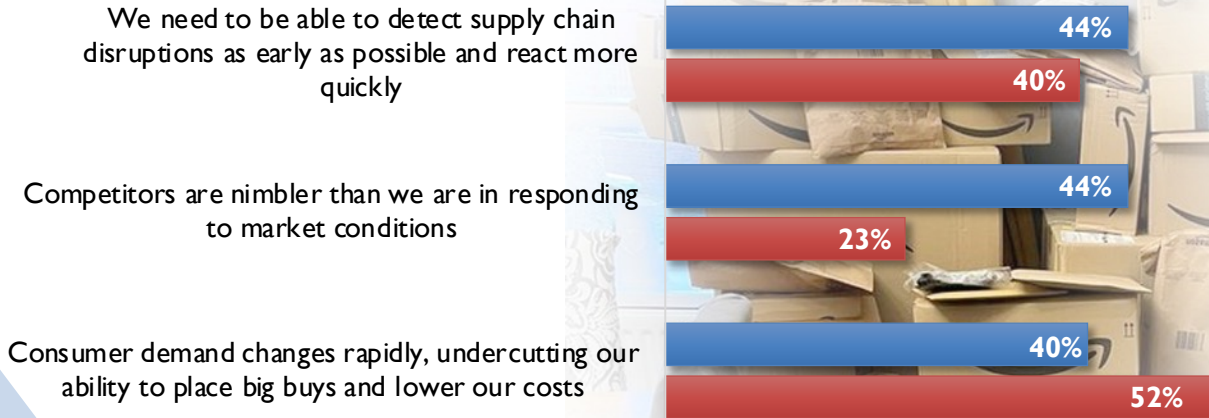
When It Comes To The Supply Chain, Retailers Struggle To Get Insights Quickly Enough To Act

Rate Your Company's Current Merchandising And Supply Chain Business Analytics Capabilities
('Full Capability' - Selected Differences)

■ Winners   ■ Others

Capability	Winners	Others
Identify service-level exceptions	69%	54%
Identify and correct supply chain capacity problems	63%	46%
Optimize merchandise profitability to the store/sku level	63%	50%
Predict cross-channel performance	63%	44%
Ability to uncover supply chain disruptions	62%	38%
Automate operational decisions	56%	42%

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On The Customer Side Of The Business, Retailers Struggle To Adjust To Local Preferences

Rate Your Company's Current Marketing And Other Customer Facing Business Analytics Capabilities
('Full Capability' - Selected Differences)

Legend: ■ Winners ■ Others

Category	Winners	Others
Identify "best"/ most profitable customers	73%	46%
Optimize assortments	62%	42%
Model future market segments	60%	33%
Optimize promotional plans	56%	56%
Simulate the effect of decisions on sales, profitability	54%	58%
Optimize store layouts	54%	46%
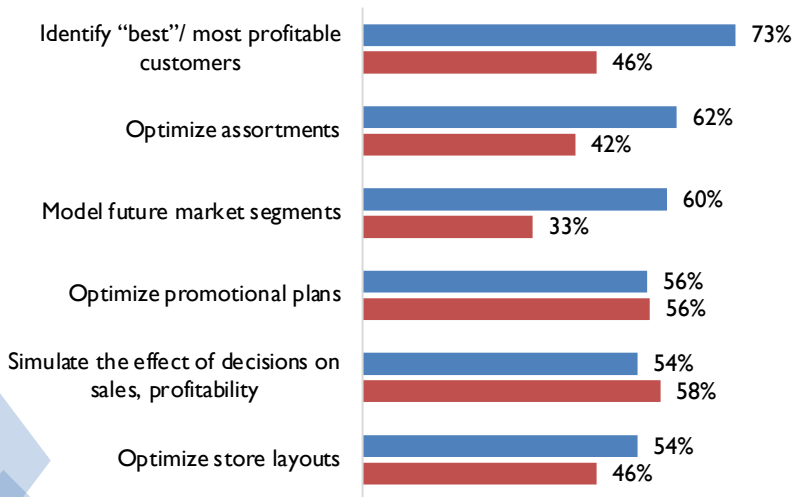
Winners Worry That Competitors Are More Agile

**Top-3 Business Challenges That Create Interest In
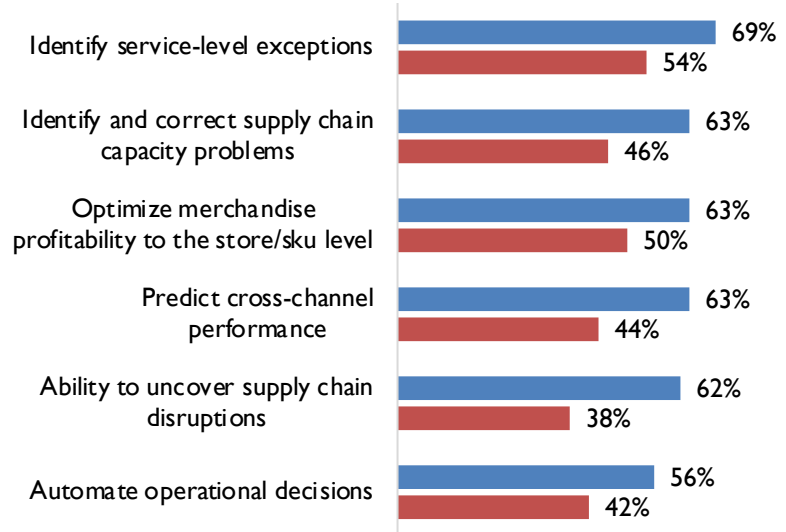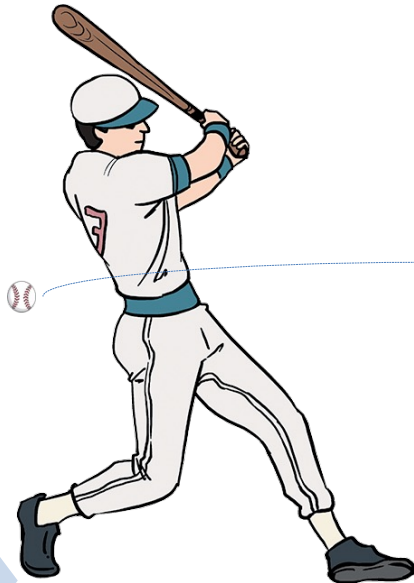AI-Enabled Analytics
(Selected Differences)**

■ Winners ■ Others

Challenge	Winners	Others
We need to be able to detect Supply chain disruptions as early as possible and react more quickly	44%	40%
Competitors are nimbler than we are in responding to market conditions	44%	23%
Consumer demand changes rapidly, undercutting our ability to place big buys and lower our costs	40%	52%
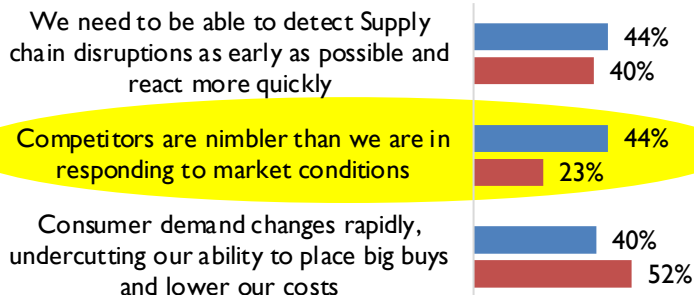
"*I don't know what would have happened … if we had laid low and never stirred up the competition… we would have remained a strictly regional player.*"
(**Sam Walton**)

Many Winners worry that "the competition" is more nimble than they are. We've seen this before, in RSR's June 2022 benchmark on the state of KPIs in Retail:

	Winners	Others
The competition is much more agile in responding to changes in supply and demand than we are	56%	33%

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Summing Up The Business Challenges

It's hardly surprising that **supply chain disruptions** are top of mind for Retail Winners and non-winners alike. 2021-22 saw shocking interruptions in the flow of goods to retailers.

But other concerns are also highlighted; **competition, consumers**, and **operational costs**.

Under-utilization of current tools and data amounts to a true business challenge for retailers – even for Retail Winners. Many companies aren't getting the full value of their current capabilities.

Nonetheless, **adoption of AI** to gain new insights from new data shows great promise.

Dealing With Disruption

Opportunities

Operationalizing analytics **is a reiterative process…**

First, retailers must implement <u>new measurements</u> into operational processes so that they can be analyzed and optimized.
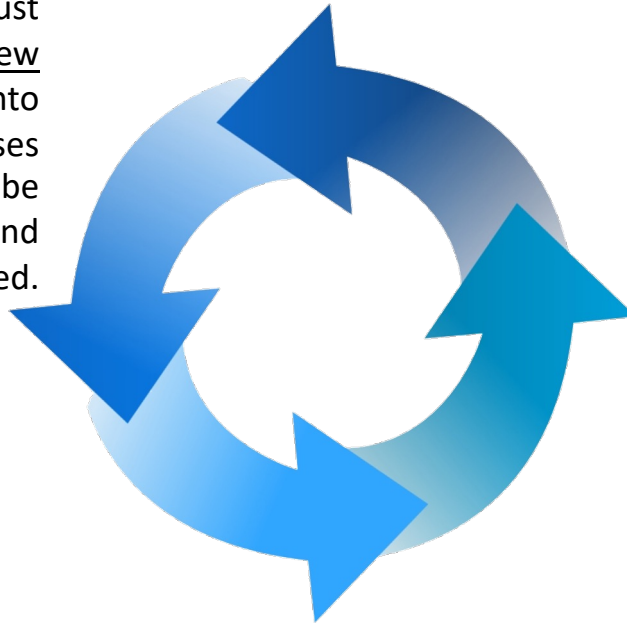
Then, real time <u>alerts derived from analytics</u> can be inserted into processes so that immediate corrective decisions can be made, *even to the point of automating certain decisions.*

The Greater The Pain, The Greater The Opportunity

On The Supply-Facing Side

"*<The supply chain is> still a major problem… It's one of the biggest factors that are causing this where we are today. We have seen some signs of softness, some signs of moderation — but nowhere near what we need to get to.*"

S&P Global Chief U.S. Economist Beth Ann Bovino, September 2022

TOP-3 Opportunities From Greater Use Of AI-enabled Analytics Within The Business
(Selected Differences)

■ Winners ■ Others

Opportunity	Winners	Others
Improve reaction to supply chain shocks	38%	50%
Improve reaction to sudden shifts in consumer demand	35%	44%
More intelligent allocation and optimization of products based on customer insights	33%	23%
Ability to test the impact of proposed decisions on the business	31%	40%
Better "what if" capabilities for matching demand to assortment, price, and promos	29%	35%

How? It Starts With Visibility

Rate How Real-Time Insights Can Help The Following Supply Chain-Related Tasks
('A Lot Of Value')

■ Winners ■ Others

Task	Winners	Others
Visibility to uncover supply chain inefficiencies	79%	60%
Demand forecasting	77%	56%
Identify and correct capacity problems	75%	67%
Visibility available-to-sell inventory anywhere within the enterprise	75%	63%
Identify inefficient suppliers	73%	63%
Response to disruptions	73%	65%
Meet service-level requirements	69%	52%
Identify network bottlenecks and prioritize responses	62%	60%

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On the Customer-Facing Side

New Data => New Insights => New Opportunities

Rate The Value That Insights From New Sources Of Data Could Bring To The Following Operational Processes At Your Company ('A Lot Of Value')

■ Winners ■ Others

Process	Winners	Others
Post-sale customer communications and followups	83%	40%
Merchandise planning & forecasting	79%	71%
Web and mobile design	75%	56%
Inventory tracking and accuracy	75%	58%
Staffing and scheduling needs	73%	52%
Employee onboarding and training	73%	58%
Store layout	73%	46%
Pre-sales customer communications and personalization	73%	56%
Social media campaigns and outreach	65%	44%
Cross-channel customer order management	60%	56%

What Stands In The Way?

Organizational Inhibitors

A More Sober Assessment Of What Stands In The Way Of Adoption

TOP-3 Organizational Inhibitors Standing In The Way Of Taking Advantage Of The Opportunities Identified
(Selected Comparisons)

Legend: ■ 2020 ■ 2022

Inhibitor	2020	2022
We have a limited understanding of how to practically use non-transactional data from digital sources such as search engines, paid advertising, social media, Internet-of-Things, etc.	27%	38%
Our IT department is not equipped to work with new complex analysis tools	23%	35%
It's hard to quantify ROI for new AI-enabled analytics capabilities	33%	33%
Our technology is not equipped to handle new data and analysis techniques	23%	33%
Business leadership believe that the potential value of AI is over-hyped	20%	33%
We don't believe that we can react quickly enough to the information that predictive analytics could tell us	24%	32%
Availability of the talent needed	29%	28%

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How To Overcome Inhibitors?
Demonstrate Value To Decision Makers In Highly Visual Ways, Via Mobile
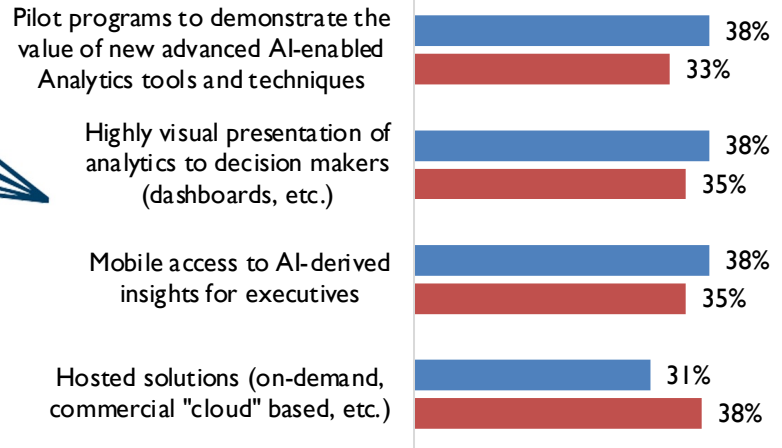
TOP-3 Ways To Overcome The Organizational Inhibitors Identified
(Selected Differences)

■ Winners ■ Others

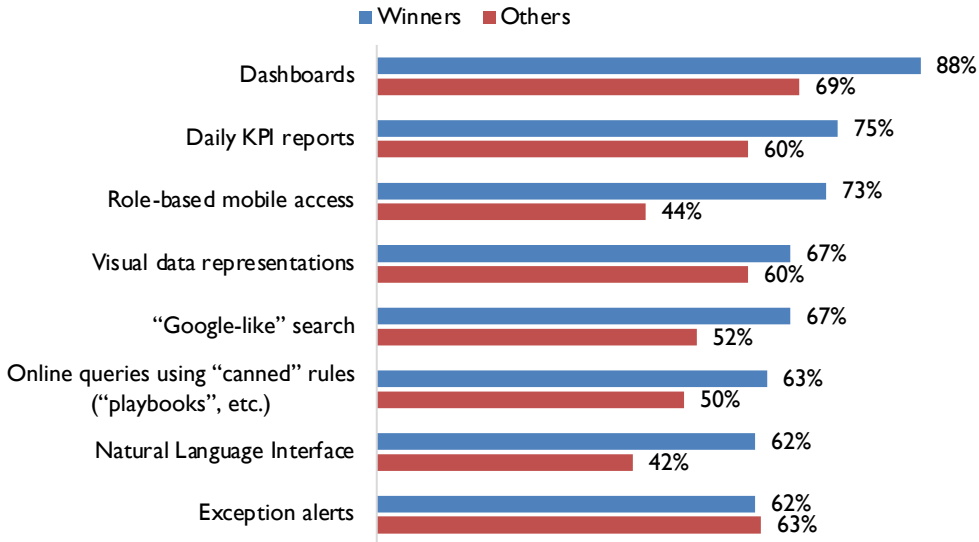|	Winners	Others
Pilot programs to demonstrate the value of new advanced AI-enabled Analytics tools and techniques	38%	33%
Highly visual presentation of analytics to decision makers (dashboards, etc.)	38%	35%
Mobile access to AI-derived insights for executives	38%	35%
Hosted solutions (on-demand, commercial "cloud" based, etc.)	31%	38%

Making Insights Accessible & Actionable

Technology Enablers

Making Actionable Information Accessible

How Important Are The Following Interfaces To Your Company?
('Very Important')

Legend: ■ Winners ■ Others

Interface	Winners	Others
Dashboards	88%	69%
Daily KPI reports	75%	60%
Role-based mobile access	73%	44%
Visual data representations	67%	60%
"Google-like" search	67%	52%
Online queries using "canned" rules ("playbooks", etc.)	63%	50%
Natural Language Interface	62%	42%
Exception alerts	62%	63%

Which Data Analytics Capabilities Stand To Benefit Them Most In The Foreseeable Future?

How Important Are The Following New Data Analytics Capabilities To Your Company?
('Very Important')

■ Winners　■ Others

Capability	Winners	Others
Realtime and ad hoc inquiries	79%	58%
"Math-based" (or algorithmic) analysis capabilities	75%	54%
Manage unstructured data	75%	54%
"Google-like" search	73%	56%
Simulation (What-If analysis)	71%	56%
Natural Language queries	71%	56%
Predictive/modeling methods	71%	63%
Supporting IoT with AI	69%	52%
Video Analytics	63%	35%
Pattern recognition in disparate data	63%	48%
Supporting robotics with AI	62%	56%

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But There's Still An Important Role For "Legacy" Analytics Too!

'Established & Important'

Legend: ■ Winners ■ Others

Category	Winners	Others
Structured data extracted from operational systems	81%	63%
Stored data aggregations	69%	52%
Data extract/transform/load from data of record for analysis	67%	60%
Realtime data aggregations from "facts" tables	67%	42%
Analytics based business cycles (daily, weekly, monthly, quarterly)	67%	48%
Data analyzed with spreadsheets	65%	60%
Data organized by Product, Location, Time	63%	52%
Rules-based analysis	60%	50%
"Drill down" capabilities	56%	38%

Report Recommendations

Don't Fear The Reaper

AI is powerful tool that can help retailers make smarter decisions – about a whole raft of things they have to decide every day.

Use These Tools To Help Do What You Said You Could

Retailers need to utilize every tool at their disposal to keep Amazon.com from becoming the shopper's "default mode." AI holds tremendous opportunity to combat that very thing by helping retailers to precisely deliver the right products to the right places at the right time and in the right quantities to meet local demand – without over-inventorying.

Think About The Merchandising Opportunities

The need for differentiated products and assortments has never been greater. Can AI really help determine what some of those products might be? Can it help with creating a differentiated mix? Winners think the answer to these questions is "yes".

Think Outside The Box

Retail decision makers need to think about their brand, what makes it different from the competition, and if there's anything that could benefit from a "smartening up" of processes.

Think Inside The Box, Too

Winners are disproportionately interested in scenario-based testing and are well underway in pilot programs with many such store-focused solutions.

Take A Page From Winners' Book

AI is already helping the best retailers across the world rationalize what they buy and in what quantity, how to get those products where they need to be, where they will sell best and at what price – the list goes on and on. Winners are embracing the potential. Everyone should.

About RSR Research

Retail Systems Research ("RSR") is the only research company run by retailers for the retail industry. RSR provides insight into business and technology challenges facing the extended retail industry, providing thought leadership and advice on navigating these challenges for specific companies and the industry at large. We do this by:

- **Identifying information** that helps retailers and their trading partners to build more efficient and profitable businesses;

- **Identifying industry issues** that solutions providers must address to be relevant in the extended retail industry;

- **Providing insight and analysis** about a broad spectrum of issues and trends in the Extended Retail Industry.

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RSR Benchmark, October 2022

Brian Kilcourse & Steve Rowen, RSR Partners

https://www.rsrresearch.com/research/artificial-intelligence-in-retail-what-now

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