

Retail & e-Commerce

SPARK Matrix™: Intelligent Retail Pricing & Promotion Optimization (IRP&PO), 2023

Market Insights, Competitive Evaluation, and Vendor Rankings

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Executive Overview

This research report includes a detailed analysis of global Intelligent Retail Pricing & Promotion Optimization (IRP&PO) market dynamics vendor landscape, and competitive positioning analysis. The study provides competition analysis and ranking of the leading Intelligent Retail Pricing & Promotion Optimization (IRP&PO) vendors in the form of SPARK Matrix. This research provides strategic information for technology vendors to better understand the market supporting their growth strategies and for users to evaluate different vendors capabilities, competitive differentiation, and its market position.

Market Dynamics and Overview

Quadrant Knowledge Solutions defines Intelligent Retail Pricing & Promotion Optimization (IRP&PO) solution as “a solution which helps retailers optimize prices across the product lifecycle, plan effective promotions, and formulate optimal markdown strategies. The solution utilizes advanced analytics to increase sell-through, maximize sales, and improve margins. The solution also helps retailers manage prices with ease and monitor the pricing performance. It equips retailers with a granular analysis of their consumers and the market by leveraging insightful data to recommend real-time prices across all channels and enable them to make informed pricing decisions.” The IRP&PO solution incorporates a variety of internal and external parameters, such as demand, cost, seasonality, weather, trends, competition, events, inventory, and location, to deliver accurate market-aligned prices using AI/ML. It empowers retailers to sustain constantly changing market conditions and meet their strategic business objectives.

Due to time-consuming and tedious pricing processes, retailers are transitioning from legacy methods to comprehensive IRP&PO solutions that adopt a dynamic pricing approach to determine optimal prices. Previously, retailers utilized spreadsheets to manually set prices for their products or services, which led to inaccuracy in pricing, a decrease in their productivity, and low customer satisfaction. They often made pricing decisions based on intuition, which led to inaccurate and suboptimal results. Furthermore, retailers also strived to manage their complex product portfolios, administer global operations with stores at multiple locations, handle multiple supplier agreements, comply with regulatory constraints, and adjust prices owing to constantly fluctuating item costs. Retailers also would make pricing decisions in the absence of relevant information, such as cost volatility, competitor prices, demand, and supply, which essentially impacted the performance of the business in terms of revenue, margin, and customer experience & loyalty. The traditional pricing approaches exhibited signs of ineffectiveness and impracticality, which necessitated retailers to seek alternatives for addressing these challenges.

Over the past few years, retailers began adopting retail pricing solutions to overcome the complexity of pricing. The adoption of these solutions helped retailers make better pricing decisions, improve their business performance, and enhance long-term customer loyalty. The development of intelligent retail pricing and promotion optimization solutions played a key role in setting and managing prices with improved efficiency. It automated many of the retailers' pricing

tasks and enhanced their accuracy, productivity, and efficiency. The IRP&PO solution relieved retailers from the inconvenient and manual task of pricing with an effortless, seamless, and error-free pricing experience. As a result, retailers are increasingly implementing intelligent retail pricing & promotion optimization solutions to optimize regular, promotional, and markdown prices and deliver real-time prices across online and offline channels.

With evolving consumer preferences and market dynamics, retailers are tailoring their pricing strategies to meet the expectations of customers and offering individualized promotions to encourage them to buy their products. Retailers are focusing on creating and executing engaging promotions to attract buyers and enhance their sales. By setting a fair and competitive pricing strategy, retailers could get a competitive edge over their rivals and can attract new customers to grow their market share and enhance customer satisfaction. The global pandemic of COVID-19 led to intense competition that necessitated retailers to adopt event-based pricing. The intelligent retail pricing & promotion optimization vendors aim to help retailers by acquiring data regarding past purchases, brand loyalty, & purchase frequency, providing insights into customers, and delivering real-time market-aligned prices.

Intelligent retail pricing & promotion optimization solutions are continuously evolving to adapt to the changing preferences of customers and keep up with the rapid innovation in technologies. The retail pricing solution market is progressing towards providing personalized price recommendations to retailers for driving customer traffic. The solutions leverage customer demographic data, loyalty data, basket data, and customer segmentation to recommend personalized promotions to retailers. The retail pricing solution vendors are incorporating advanced AI/ML to improve the efficiency of business processes. The vendors are upgrading their solutions with recent AI/ML technological enhancements, such as generative AI for data enrichment to obtain better competitive insights. Additionally, more vendors are focusing on improving retailer and supplier collaboration to plan and manage effective promotions and make optimal usage of trade funds for optimizing promotion efficiency across channels. The growing competition due to customers switching towards online channels for shopping necessitates retailers to adopt dynamic pricing and more real-time data integration. Retailers are required to focus more on closely monitoring markets to obtain a holistic view of the competitive landscape and set competitive prices for their products.

The following are the key capabilities of intelligent retail pricing & promotion optimization solutions:

- **Data Acquisition & Management:** The IRP&PO solution helps businesses ingest third-party data from multiple sources, such as enterprise resource planning (ERP), customer relationship management (CRM), point-of-sale (POS), and eCommerce solutions through secure file transfer protocol (SFTP) or API integration. The IRP&PO solution integrates data from various solutions to provide a single source of truth for pricing and promotional data. The solution helps retailers manage structured and unstructured data and provides robust data cleansing capabilities to ensure a high level of data quality. Its high-quality data is useful for downstream purposes, such as analytics and decision-making. Additionally, it enriches data with external information for delivering actionable insights to the users.
- **Price Management & Optimization:** The IRP&PO solution helps retailers manage and optimize their initial and regular prices using advanced analytics. It measures price elasticity at every product, store, category, or stock-keeping unit (SKU) level and leverages AI/ML to recommend optimal prices to retailers. The price management & optimization capability assists retailers in managing prices by allowing their retailers to create & execute effective pricing strategies and manage any price exceptions. The capability also supports rules-based pricing, allowing retailers to apply & prioritize rules and ensure that the pricing recommendations are aligned with user-defined rules & constraints. It supports dynamic pricing by recommending real-time price changes to retailers in response to market trends, changes in competitor prices, and consumer behavior. Furthermore, it allows retailers to adjust prices at various levels of granularity, ranging from product categories to SKUs. The capability also helps retailers simulate various pricing scenarios and analyze their impact on the KPIs.
- **Promotion Planning & Optimization:** The IRP&PO solution offers promotion planning and optimization capability that helps retailers plan, manage, and execute promotions. The capability provides a centralized planning space for retailers to plan promotions and create customer-centric promotions based on sales data, consumer behavior, locations, and business objectives. The capability uses advanced analytics to provide optimal promotion recommendations and helps retailers

forecast promotions. It considers various factors, such as product cannibalization, halo & cross-category effects, inventory constraints, competition, seasonality, and store location, to plan promotions. It supports what-if scenarios, allowing users to review the impact of various promotional scenarios on key KPIs. Furthermore, it assists retailers in implementing channel-specific promotion strategies using the obtained insights, recommendations, and plans. It also helps retailers measure the effectiveness of promotions across channels, evaluate their performance, and eliminate underperforming promotions.

- **Markdown Pricing & Optimization:** The IRP&PO solution offers markdown pricing and optimization to help retailers target the right product at the right time and the right price. The markdown pricing & optimization capability helps retailers identify markdown items for each season and address end-of-season excess inventory challenges. The capability leverages machine learning to recommend the optimal timing and pricing for markdowns, maximizing retailers' margins and sell-through. It measures the price elasticity for understanding consumer demand and assesses the inventory level at each store to assist retailers in creating optimal markdown strategies that align with business objectives. Additionally, it allows retailers to review each markdown recommendation and simulate various markdown scenarios to evaluate their impact on KPIs enabling retailers to select the optimal markdown strategy.
- **Analytics, Dashboards, & Reporting:** The IRP&PO solution uses a wide range of analytics to deliver real-time actionable insights and recommendations to retailers, helping them track their business performance at a granular level. The IRP&PO solution leverages advanced analytics to understand customer purchase behavior & patterns and predict consumer demand across various channels. The solution provides real-time visibility to retailers for analyzing the performance of campaigns, events, and promotion activities. With user-friendly customizable dashboards, the solution helps retailers analyze the pricing performance over time, visualize pricing models, manage price exceptions, and plan promotions and markdowns in real-time. It also allows retailers to track changes in prices and update & manage them in real-time across all connected systems. Managing data in real-time helps retailers to obtain valuable insights and make informed business decisions.

Competitive Landscape and Analysis

Quadrant Knowledge Solutions conducted an in-depth analysis of major Intelligent Retail Pricing & Promotion Optimization (IRP&PO) vendors by evaluating their products, market presence, and value proposition. The evaluation is based on primary research using expert interviews, analysis of use cases, and Quadrant's internal analysis of the overall Intelligent Retail Pricing & Promotion Optimization (IRP&PO) market. This study includes an analysis of key vendors, including Aifora, antuit.ai, Blue Yonder, Clear Demand, Competera, Daisy Intelligence, DemandTec by Acoustic, Engage3, First Insight, Impact Analytics, Intelligence Node, Logility, Oracle Retail, Periscope® by McKinsey, RELEX Solutions, Retalon, Revionics® (an Aptos Company), SAP, Solvoyo, SymphonyAI, ToolsGroup, and Yieldigo.

Companies, namely Blue Yonder, Daisy Intelligence, DemandTec by Acoustic, Engage3, Impact Analytics, Intelligence Node, Periscope® by McKinsey, ToolsGroup, and Yieldigo, are the top performers and technology leaders in the 2023 SPARK Matrix™ of the global IRP&PO market. These companies offer robust out-of-the-box capabilities, user-friendly dashboards, advanced analytics, and integration & interoperability. These capabilities assist retailers in creating & executing optimal pricing strategies, planning effective promotions, and managing end-of-season or lifecycle markdowns.

Blue Yonder's pricing solution helps retailers manage and optimize prices across online and offline channels. The solution provides insights into drivers that influence consumer demand to help retailers create optimal pricing strategies and make data-driven pricing decisions. Furthermore, its causal forecasting engine utilizes machine learning to accurately forecast future demand while incorporating various variables such as weather, seasonality, price, promotions, and other demand-influencing factors.

Daisy Intelligence's retail pricing solutions help organizations maximize margin & revenue by ensuring consumers find the right product at the right price & time through the right channel. The solutions enhance the efficiency of pricing processes through end-to-end automation. Its solutions incorporate various factors, such as affinity relationship between products, product cannibalization, promotional cadences, halo & forward buying effects, competition, seasonality, store, competitor & consumer household locations, products' TSI, and promotional, price, & cross-price elasticities, to deliver optimal price & promotion recommendations to users.

DemandTec's pricing platform helps retailers & suppliers optimize & execute customer-centric pricing and promotions strategies. The solutions assist organizations in balancing consumer demand with their financial objectives using AI-driven price, promotion, & markdown recommendations. Its solutions facilitate deal management, helping retailers and suppliers streamline & automate trade collaboration and promotion funding. Furthermore, it offers a centralized space for retailers & suppliers to negotiate, execute, and reconcile deals.

Engage3 offers an end-to-end pricing platform for optimizing prices throughout the product lifecycle. It balances the price image and margin to maximize sales. Its Efficient Frontier Curve identifies the right balance of the price image and category or item-level margins to determine optimal prices for maximizing sales. Furthermore, it provides actionable competitive insights that help retailers set competitive prices and improve their market share.

Impact Analytics's retail pricing solution assists retailers with end-to-end lifecycle pricing. It also helps retailers make data-driven pricing decisions that meet business objectives. The solution utilizes AI to optimize pre-season, in-season, and end-of-lifecycle pricing strategies and maximize retailers' margin and inventory sell-through. Furthermore, Impact Analytics's solution uses computer vision on images to automatically extract product attributes and enhance forecasting, price elasticity, assortment decisions, and pricing recommendations. The solution also assists in optimizing trade promotions by helping retailers, manufacturers, and brands maximize their return on promotion spending.

Intelligence Node's pricing & promotions solution uses AI/ML to deliver real-time competitive insights, enabling retailers to optimize pricing strategies across online channels. The solution considers various factors such as consumer demand, market trends, inventory level, and competitor prices to recommend optimal prices to retailers. The Digital Shelf Analytics (DSA) solution enables retailers to review, compare, and optimize product listings, improve search rankings, and increase conversions. The DSA solution also helps retailers optimize prices and monitor product availability to enhance customer experience and digital shelf performance.

Periscope® by McKinsey's pricing platform has a modular design where each technology module can be easily configured as building blocks to suit the needs of its clients. Periscope offers comprehensive B2C pricing solutions that help users integrate real-time data from internal & external sources to make data-driven pricing decisions based on demand, margins, and competition. The solutions

provide insights into the pricing performance over time to aid organizations in determining areas for improvement and making necessary adjustments. Furthermore, Periscope's robust competitive intelligence (CI) capability helps retailers obtain real-time competitive data and provides insights for creating optimal pricing strategies across sales channels.

ToolsGroup's pricing solutions assist retailers in creating and optimizing pricing strategies at the product and category levels to maximize revenue. The platform helps retailers streamline the planning, forecasting, and execution of sales promotions across all channels. Its robust AI engine analyzes complex data regarding customers, products, locations, & price points, incorporates elasticity computations in real-time, and generates accurate demand forecasts.

Yieldigo offers an end-to-end retail pricing solution that leverages advanced analytics to help retailers set data-driven optimal prices. The solution aids retailers in maintaining consistent prices across sales channels, providing customers with a seamless purchase experience. It utilizes mathematical models to forecast future demand for products across stores or segments. Additionally, Yieldigo's recommendation engine offers recommendations to retailers for adding missing products or removing misleading products when grouping products in families.

The vendors, such as antuit.ai, Competera, First Insight, Logility, Oracle Retail, RELEX Solutions, Retalon, Revionics® (an Aptos Company), SAP, Solvoyo, and SymphonyAI, are positioned as strong contenders in the 2023 SPARK Matrix™ of the IPR&PO market. These vendors provide comprehensive technological capabilities and are continuously enhancing their offerings to gain market traction in the retail pricing space. They are rapidly growing their presence across geographies & industry verticals by acquiring new clients and increasing their market share. Furthermore, these vendors are aware of the upcoming market trends and have laid out a detailed roadmap to capitalize on future growth opportunities.

antuit.ai's lifecycle pricing solution leverages machine learning to help businesses set optimal list prices for their products and make data-driven pricing decisions. The solution assists users in understanding the various factors that affect demand, such as seasonality, price, product lifecycle, trends, and local events. Furthermore, it helps users consolidate relevant data into a single source of truth, helping them make better supply chain decisions, improve forecast accuracy, and optimize inventory levels.

Competera's Pricing Platform helps retailers and brands in setting & managing AI-driven optimal prices across the product lifecycle. The platform assists retailers in maximizing gross margin and increasing market share by recommending real-time competitive prices. Additionally, it helps retailers automate complex pricing tasks, improving the accuracy of pricing and allowing retailers to seamlessly adjust prices for different customer segments.

First Insight's pricing platform helps brands and retailers determine optimal product price points to maximize revenue. The platform relies on voice of the customer (VoC) data to help retailers set prices based on customers' willingness to pay. It helps retailers optimize their pricing, promotional, and markdown strategies to improve sales and margins and reduce markdowns.

Logility's pricing & promotions solution helps retailers forecast demand while considering the effect of promotions to meet consumer demand. It utilizes AI/ML algorithms to help retailers plan inventories, prevent stock-outs, and improve inventory turnover. Its planning solution allows retailers to forecast market demand for new, short-life, seasonal, and end-of-life products based on various attributes, such as color, price point, and material type.

Oracle Retail provides a lifecycle pricing optimization solution that helps retailers make effective pricing decisions and minimize retail markdowns. It provides retailers with consumer insights, helping them understand customers better and provide personalized recommendations. It also enables organizations to optimize business performance using advanced analytics and improve decision-making. RELEX's retail pricing solution leverages AI/ML to help retailers optimize prices across all channels & products by considering various factors such as demand, competition, and costs. The solution utilizes a flexible and configurable rules engine that allows retailers to specify business objectives and conditions based on which the engine adjusts its recommendations. Furthermore, the solution provides accurate demand forecasts, thereby helping retailers reduce stock-outs and optimize inventory levels.

Retalon's retail pricing solution helps retailers manage their end-to-end prices and set optimal pricing strategies that suit their business requirements. The solution equips retailers with AI-driven optimal pricing and promotions & markdown recommendations by taking into account various factors such as demand, seasonality, events, weather, and competition.

Revionics's retail pricing solution helps retailers improve sales, margins, & customer loyalty by helping them make informed pricing decisions using robust analytics & advanced ML-driven models. The solution enables retailers to set markdown strategies in advance, based on which it automatically generates clearance prices during a defined schedule. Additionally, Revionics offers a cross-selling feature that recommends new combinations to retailers regarding promotional items, maximizing the impact of promotions.

SAP's retail pricing solutions help organizations optimize pricing & promotion strategies and maximize their margins across all sales channels. The solutions also assist organizations with trade promotion planning and management by helping them plan & execute trade promotions and track the performance of their promotions.

Solvoyo's pricing solutions provide retailers with visibility into pricing performance and help them analyze the impact of pricing decisions. The solutions offer automated price recommendations by leveraging ML, helping retailers adjust prices based on defined business rules and targets that maximize revenue and margin. Its analytics platform combines structured and unstructured data from various sources to create a single source of truth. The platform delivers actionable insights through the analysis of big data, enabling users to make better pricing decisions.

SymphonyAI's solutions offer advanced analytical insights, which help retailers predict and respond to fluctuating consumer needs and preferences. Its demand forecasting solution utilizes AI to analyze complex data and generate accurate demand forecasts while considering various factors, such as weather, seasonality, events, holidays, and trends. Additionally, SymphonyAI's intelligent clustering capability enables users to cluster stores based on geography, demographics, customer segments, store attributes, and category performance to help retailers understand consumer demand better.

The SPARK Matrix also provides an analysis of the vendors, such as Aifora and Clear Demand. These companies are focusing on enhancing their in-house capabilities to cater to a wide range of use cases. These companies are planning to expand their current market offerings to tap new markets and acquire new clients.

Intelligent Retail Pricing & Promotion Optimization (IRP&PO) vendors are focusing on improving their technology value proposition by enhancing product

key functionalities and supporting seamless integration with enterprise resource planning (ERP), customer relationship management (CRM), point-of-sale (POS), and eCommerce systems. Organizations face difficulties in finding the right IRP&PO solutions that are suitable for their industry-specific and organization-specific use cases due to the availability of multiple solutions with varying capabilities.

While most of the vendors may provide all the core capabilities, the breadth and depth of these capabilities may differ based on the vendors' offerings. Organizations should evaluate IRP&PO vendors based on their ability to provide seamless integration with various organization-owned tools and platforms, offer scalability & extensibility, and effectively segment target customers. The vendors' ability to offer a truly open architecture-based platform is vital for enhancing the customer's ownership experience. Additionally, the vendor's customer value proposition may differ in terms of ease of deployment, ease of use, price/performance ratio, support for a range of use cases, and global support service.

The retail space across B2B and B2C segments is continuously transforming, requiring vendors to expand their R&D investments, make continuous enhancements to their software, and provide a robust technology value proposition to meet future customer needs. The vendor's ability to accommodate emerging technology trends, artificial intelligence, and machine learning technologies to provide a holistic & unified platform is increasingly becoming the key differentiator when selecting an IRP&PO vendor.

Key Competitive Factors and Technology Differentiators

The following are the key competitive factors and technology differentiators for the evaluation of Intelligent Retail Pricing & Promotion Optimization (IRP&PO) vendors. While a majority of the IRP&PO solutions offer all the core functionalities, the breadth and depth of functionalities may differ based on the vendors' offerings. Driven by increasing competition, vendors enhance their technology capabilities and overall customer value proposition to remain competitive. Some of the key differentiators of intelligent retail pricing & promotion optimization solutions include:

Demand Forecasting: Intelligent retail pricing & promotion optimization solutions should enable retailers to predict demand at various price points using advanced analytics and make precise estimates for total sales & revenue. The demand forecasting capability analyzes complex data and generates accurate demand forecasts based on factors such as weather, seasonality, events, holidays, and trends using AI/ML. With the aid of accurate demand forecasts, the solution helps retailers decrease stock-outs, minimize waste due to unsold inventory, and reduce markdowns. Retailers should look for vendors whose demand forecasting capability would help them manage inventory, plan production, and set better pricing strategies to maximize margins.

Trade Promotion Management: The solution should offer trade promotion management (TPM) capability that enables retailers and suppliers to streamline and automate trade collaboration and promotion funding for improving promotional planning and maximizing their return on investment. The capability should also offer a centralized platform for retailers & suppliers to negotiate, execute, and reconcile deals, in addition to managing invoices, tracking fund spending, and auditing deals and trade promotions. Furthermore, TPM should assist retailers in measuring the effectiveness of trade promotions by analyzing their impact on the KPIs to subsequently improve future trade promotions. Retailers must look for a solution whose TPM capability would help them plan, manage, and execute effective trade promotions while ensuring collaboration with the consumer packaged goods (CPG) brands.

Competitive Intelligence: Retailers should look for an intelligent retail pricing & promotion optimization solution that offers a robust competitive intelligence (CI) capability, which enables their retailers to create optimal pricing strategies across

sales channels using real-time competitive insights. The CI capability utilizes AI-driven attribute-based matching, elastic search, and image recognition for matching products with the competitors across the entire store. The CI capability of the vendor's solution should automatically recommend product matches to users based on various item attributes and allow the users to validate the matches. Furthermore, the capability must provide dashboards that can deliver competitive insights on price positioning, assortment structure, and breadth & depth of promotions to help retailers understand the competitive environment and create effective & efficient processes that maximize sales. Retailers should look for a solution with comprehensive CI capability that integrates data from multiple sources and provides them with accurate real-time omnichannel competitive pricing data & insights.

Digital Shelf Analytics: Retailers should look for an intelligent retail pricing & promotion optimization solution that offers digital shelf analytics (DSA) capability. The DSA capability should enable retailers to gather and analyze data from the digital shelf and help them understand customers' interaction with the listed products and their purchase behavior. The capability should constantly monitor items on the digital shelf, provide product performance data to the users, and deliver real-time insights into consumer buying behavior. It should assist retailers in tracking, measuring, and improving product performance on the digital commerce platform by analyzing the set of KPIs. Retailers must look for a solution with DSA capability that helps them improve product listings, optimize pricing, and increase conversions, which would ultimately augment their sales and margins.

Use of Generative AI: Retailers should assess intelligent retail pricing and promotion optimization vendors based on the advanced technologies they use. Vendors should be capable of using technologies such as generative AI to help users analyze customer behavior data and gain better insights into consumer preferences. Generative AI technology uses AI-driven chatbots and virtual shopping assistants (VPAs) to provide personalized recommendations to users and help them respond quickly to customer queries. Additionally, it also helps retailers enrich their data regarding product attributes to obtain clearer competitive insights. Retailers should look for a solution with robust technology that provides tailored product recommendations, promotions, and content to users for personalized customer experience.

Seamless Integration: The intelligent retail pricing & promotion optimization solution should seamlessly integrate with enterprise resource planning (ERP), customer relationship management (CRM), product information management

(PIM), planning, operations, financial, and eCommerce solutions to ensure continuous data exchange between the solutions. The capability should help retailers attain quicker deployment, lower IT involvement, and improve time to value. Retailers should look for vendors with out-of-the-box integration connectors, webhooks, RESTful API, and API documentation to ensure smooth data flow, eliminate redundancies, and streamline operations.

Intuitive User Experience: Retailers should look for an intelligent retail pricing & promotion optimization solution that offers interactive & intuitive user interfaces (UI). The UI should help retailers streamline complex processes & workflows by offering real-time visibility into the pricing & promotion performance. The solution should offer a configurable user interface that meets the specific needs of various users and helps retailers manage and optimize their end-to-end pricing. Additionally, vendors must provide advanced navigation systems and automated workflows & reminders with concise instructions to ensure a seamless user experience. Retailers should look for vendors offering intuitive user interfaces that enable them to expedite various tasks, ultimately improving their productivity and efficiency.

Application Diversity: The intelligent retail pricing & promotion optimization solution vendors should focus on deploying applications across a range of industry verticals and must be able to tailor their offerings based on the industries their customers operate. The solutions should support various use cases, such as managing large volumes of structured and unstructured data, tracking competitor prices, matching similar products, and intra-day pricing against the key competition. The solution should cater to a wide range of industry verticals, such as consumer packaged goods (CPG) brands as well as retailers in the supermarkets, convenience stores, fashion & apparel, food & grocery, footwear, durables goods, consumer electronics, pharmaceutical & healthcare, home goods, beauty, eCommerce, automotive parts, and other retail segments. Retailers should look for solutions that recommend dynamic prices, make in-season adjustments to promotions & markdowns to clear inventory, optimize & set prices using advanced analytics, automate the promotion planning process, gain visibility into the performance of past promotions, and optimize markdowns.

Scalability: Retailers should look for an intelligent retail pricing & promotion optimization solution that is scalable and can manage & process large volumes of data and transactions with minimal time and resources. The solution should have the ability to support increasing amounts of data and handle varying workloads as per the requirements of the business to improve productivity, reduce downtime,

and satisfy users. Retailers must look for a solution that is scalable enough to respond to fluctuations in system processing demands.

Product Strategy and Roadmap: Retailers should evaluate intelligent retail pricing & promotion optimization solution vendors based on their ability to devise a comprehensive technology roadmap and make product enhancements that align with the retailer's market growth strategy. Vendors must have strong knowledge of current market dynamics to identify areas of investment for maximizing the retailer's return on investment, improving user experience, and maintaining a competitive advantage. Vendors must continuously evolve their technology platform by incorporating advanced AI/ML modeling techniques for providing optimized results to the users. Therefore, retailers should assess vendors' ability to align their product enhancements with emerging market opportunities, trends, & evolving buyer requirements, enhance their product value, and deliver robust solutions.

Deployment & Accessibility: Intelligent retail pricing & promotion optimization solution vendors should offer multiple deployment models, such as on-premises, cloud, or hybrid, that align with the retailer's needs. Retailers must look for vendors that provide mobile applications to access features, such as approvals, entering comments, reviews, and monitoring business performance, to have quick and easy access to the features from anywhere.

SPARK Matrix™: Strategic Performance Assessment and Ranking

Quadrant Knowledge Solutions' SPARK Matrix provides a snapshot of the market positioning of the key market participants. SPARK Matrix provides a visual representation of market participants and provides strategic insights on how each supplier ranks related to their competitors, concerning various performance parameters based on the category of technology excellence and customer impact. Quadrant's Competitive Landscape Analysis is a useful planning guide for strategic decision-making, such as finding M&A prospects, partnerships, geographical expansion, portfolio expansion, and similar others.

Each market participant are analyzed against several parameters of Technology Excellence and Customer Impact. In each of the parameters (see charts), an index is assigned to each supplier from 1 (lowest) to 10 (highest). These ratings are designated to each market participant based on the research findings. Based on the individual participant ratings, X and Y coordinate values are calculated. These coordinates are finally used to make SPARK Matrix.

Technology Excellence	Weightage	Customer Impact	Weightage
Data Acquisition & Management	8%	Product Strategy & Performance	20%
Price Management & Optimization	15%	Market Presence	20%
Promotion Planning & Optimization	15%	Proven Record	15%
Markdown Pricing & Optimization	15%	Ease of Deployment & use	15%
Analytics, Dashboards & Reporting	10%	Customer Service Excellence	15%
Recommendation Engine	10%	Unique Value Proposition	15%
Competitive Differentiation Strategy	10%		
Application Diversity	7%		
Integration & Interoperability	5%		
Vision & Roadmap	5%		

Evaluation Criteria: Technology Excellence

- **Data Acquisition & Management:** The ability to integrate, manipulate, and manage complex data in addition to robust data cleansing to ensure a high level of data quality.
- **Price Management & Optimization:** The ability to create pricing strategies, update prices, and provide optimal price recommendations utilizing advanced analytics.
- **Promotion Planning & Optimization:** The ability to plan, evaluate, forecast, execute, and manage promotional activities across various sales channels.
- **Markdown Pricing & Optimization:** The ability to recommend the optimal timing and pricing for markdowns, maximizing retailers' that maximizes margins and sell-through.
- **Analytics, Dashboards & Reporting:** The ability to provide user-friendly and customizable dashboards with relevant KPIs to monitor the business performance.
- **Recommendation Engine:** The ability to recommend optimal prices, promotions, and markdowns in real-time to the users.
- **Application Diversity:** The ability to demonstrate product deployment for a range of industry verticals and/or multiple use cases.
- **Integration & Interoperability:** The ability to offer a product and technology platform that supports integration with multiple best-of-breed technologies, provides prebuilt out-of-the-box integrations, and open API support and services.
- **Vision & Roadmap:** Evaluation of the vendor's product strategy and roadmap with the analysis of key planned enhancements to offer superior products/technology and improve the customer ownership experience.

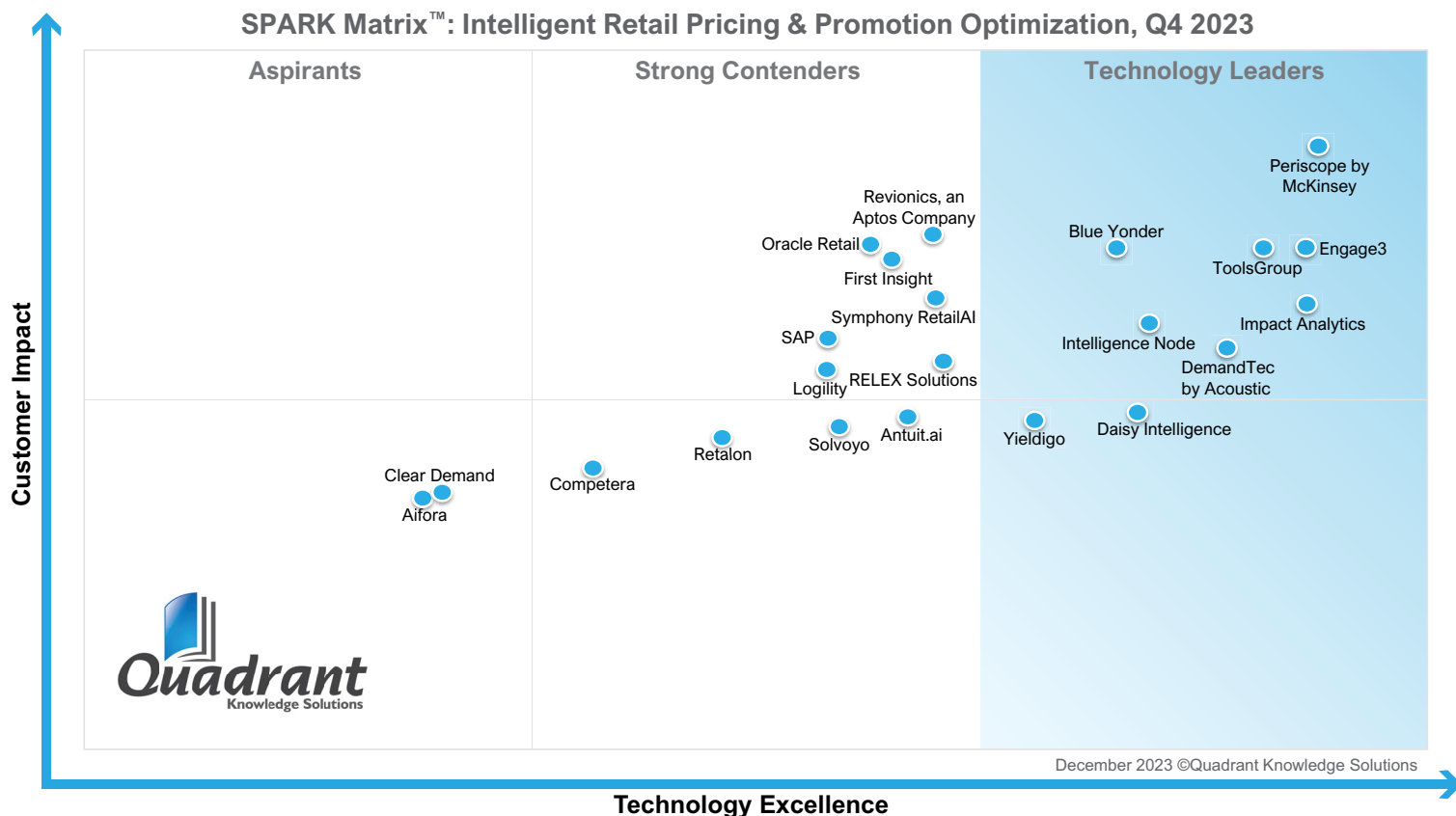
Evaluation Criteria: Customer Impact

- **Product Strategy & Performance:** Evaluation of multiple aspects of product strategy and performance in terms of product availability, price to performance ratio, excellence in GTM strategy, and other product-specific parameters.
- **Market Presence:** The ability to demonstrate revenue, client base, and market growth along with a presence in various geographical regions and industry verticals.
- **Proven Record:** Evaluation of the existing client base from SMB, mid-market and large enterprise segment, growth rate, and analysis of the customer case studies.
- **Ease of Deployment & Use:** The ability to provide superior deployment experience to clients supporting flexible deployment or demonstrate superior purchase, implementation, and usage experience. Additionally, vendors' products are analyzed to offer user-friendly UI and ownership experience.
- **Customer Service Excellence:** The ability to demonstrate vendors capability to provide a range of professional services from consulting, training, and support. Additionally, the company's service partner strategy or system integration capability across geographical regions is also considered.
- **Unique Value Proposition:** The ability to demonstrate unique differentiators driven by ongoing industry trends, industry convergence, technology innovation, and such others.

SPARK Matrix™: Intelligent Retail Pricing & Promotion Optimization (IRP&PO)

Strategic Performance Assessment and Ranking

Figure: 2023 SPARK Matrix™
Strategic Performance Assessment and Ranking)
Intelligent Retail Pricing & Promotion Optimization (IRP&PO)



Vendor Profile

The following vendor profile is written based on the information provided by the vendor's executives as part of the research process. The Quadrant's research team has also referred to the company's website, whitepapers, blogs, and other sources for writing the profile. A detailed vendor profile and analysis of all the vendors, along with various competitive scenarios, are available as a custom research deliverable to our clients. Users are advised to directly speak to respective vendors for a more comprehensive understanding of their technology capabilities. Users are advised to consult Quadrant Knowledge Solutions before making any purchase decisions, regarding Intelligent Retail Pricing & Promotion Optimization (IRP&PO) solution and vendor selection based on research findings included in this research service.

ToolsGroup

URL: <https://www.toolsgroup.com>

Founded in 1993 and headquartered in Boston, Massachusetts, USA, ToolsGroup operates in the software development industry and is a provider of SaaS-based supply chain & retail planning solutions that help businesses make data-driven decisions to improve operational performance. The company offers various solutions for demand forecasting & planning, inventory optimization, merchandise financial planning, allocation & replenishment, assortment planning, production & capacity planning, pricing & promotions, sales & operations planning, and dynamic fulfillment. ToolsGroup's pricing & promotions solutions include PriceAI and MarkdownAI, as part of its JustEnough Dynamic Pricing platform, which helps retailers obtain a holistic view of pricing and markdown strategies. The platform offers robust retail pricing capabilities, including dynamic price optimization, promotion management, markdown optimization, and demand forecasting

Analyst Perspective

The following is the analysis of ToolsGroup's capabilities in the global intelligent retail pricing & promotion optimization (IRP&PO) market:

- ToolsGroup's pricing & promotions solutions help retailers create and optimize pricing strategies at the product and category levels to maximize revenue. The solutions assist retailers in managing and automating pricing throughout the product lifecycle. The company's EvoAI engine allows retailers to compare various pricing scenarios, forecast the outcome for each scenario by assessing its impact on KPIs, and provide optimal pricing recommendations to users, maximizing revenue.
- The PriceAI solution uses advanced analytics and incorporates pricing constraints to recommend optimal prices to users, helping maximize business objectives such as sales and margins. The PriceAI solution utilizes an elasticity engine to measure the price elasticity of items. It then uses advanced analytics to estimate the demand at different price points to determine and recommend the optimal price point to users. It also assists retailers in clustering stores based on various factors, such as store proximity, demographics, and store

type, to optimize prices across clusters. Further, it supports dynamic pricing by allowing users to adjust prices in response to external factors, such as demand, supply, and competition, and recommends real-time prices that maximize revenue to users. It also supports omnichannel pricing, helping retailers align optimal prices across all channels to improve customer experiences.

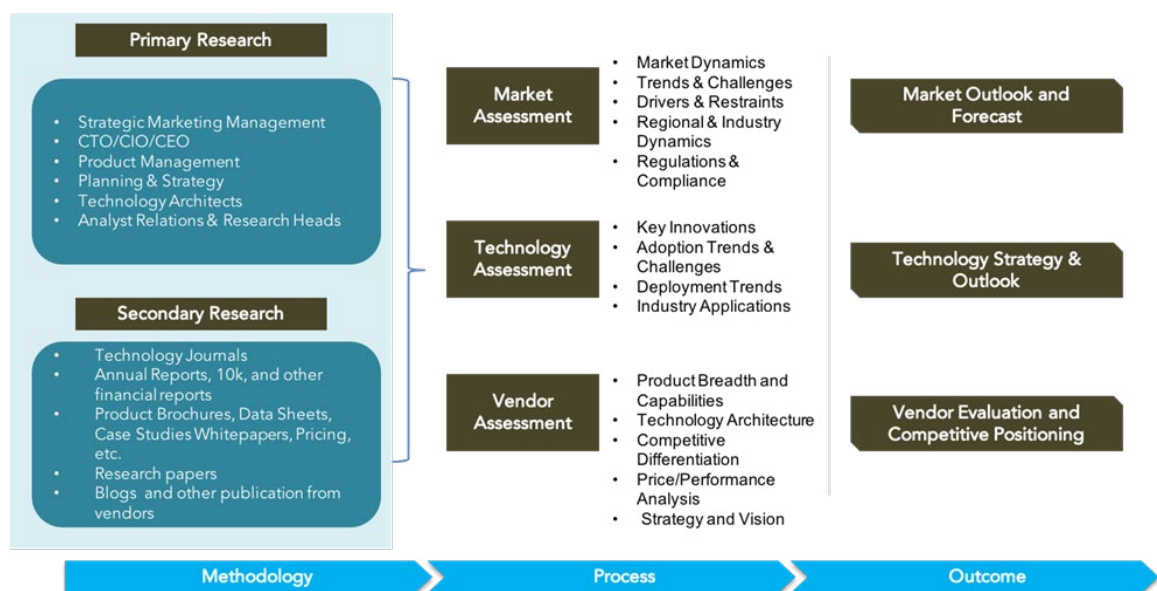
- ToolsGroup's promotion management capability recommends optimal discount levels for each promotional item using AI. The capability provides a centralized location for planning promotions, enabling users to collaborate across departments for promotional activities. It helps retailers track the performance of promotions and allows users to predict the impact of future promotions by analyzing KPIs. Additionally, it helps measure the return on investment (ROI) of promotions, enabling retailers to select the optimal promotional campaign that maximizes ROI.
- ToolsGroup's MarkdownAI solution helps plan markdowns by allowing retailers to create markdown strategies across each region, store, and channel with different markdown goals aligned with the business objectives. The solution enables users to compare various scenarios and select the optimal markdown strategy based on their impact on KPIs. It assists retailers in analyzing consumer behavior and market trends in real-time across the markdown season to recommend optimal markdown prices to users. Further, it aids retailers in monitoring markdown outcomes, enabling users to assess the impact of markdowns throughout the season.
- ToolsGroup has a wide range of technology and channel partners. Its strategic partnerships with technology companies assist in custom development, order management, and obtaining weather data. Its channel partnerships assist clients with integration, implementation, and consulting services.
- ToolsGroup's key technology differentiator is its demand forecasting capability, which utilizes advanced machine learning algorithms, such as the light gradient boosting algorithm (LightGBM), to enhance the accuracy of demand forecasts. Accurate demand forecasts help retailers improve sales & revenue and create better pricing strategies.
- ToolsGroup's platform supports various use cases, such as measuring and tracking the impact of price changes, providing automated & optimized pricing recommendations, managing complex pricing scenarios, optimizing seasonal markdowns, aligning optimal prices across all regions, channels, networks,

countries, & store types, experimenting different pricing strategies to allow users select the optimal strategies, streamlining planning & collaboration across departments for promotional activities, scheduling, tracking, & optimizing promotions, creating & comparing various pricing scenarios to assess impact on KPIs, and streamlining markdown process to ensure better collaboration.

- From a geographical perspective, the company has a presence across North America, South America, Europe, Africa, and Oceania. From an industry vertical perspective, it serves customers in the aftermarket parts, consumer packaged goods, manufacturing, and distribution sectors and retail clients in the fashion & apparel, footwear, consumer durables, and consumer electronics segments.
- In its future roadmap, ToolsGroup focuses on incorporating additional analytics, reporting, and automation throughout its MarkdownAI solution. It plans to incorporate advanced AI/ML capabilities into its solutions, enhance its what-if scenarios simulation functionality, and develop unified customer experiences. It also aims to expand its wholesale capabilities, redesign the UI/UX of its applications, and add customer-requested functionalities to its core products. Further, it plans to develop a new AI engine to model, simulate, optimize, and recommend optimal promotions to retailers.

Research Methodologies

[Quadrant Knowledge Solutions](#) uses a comprehensive approach to conduct global market outlook research for various technologies. Quadrant's research approach provides our analysts with the most effective framework to identify market and technology trends and helps in formulating meaningful growth strategies for our clients. All the sections of our research report are prepared with a considerable amount of time and thought process before moving on to the next step. Following is the brief description of the major sections of our research methodologies.



Secondary Research

Following are the major sources of information for conducting secondary research:

Quadrant's Internal Database

Quadrant Knowledge Solutions maintains a proprietary database in several technology marketplaces. This database provides our analyst with an adequate foundation to kick-start the research project. This database includes information from the following sources:

- Annual reports and other financial reports
- Industry participant lists
- Published secondary data on companies and their products
- Major market and technology trends

Literature Research

Quadrant Knowledge Solutions leverages on several magazine subscriptions and other publications that cover a wide range of subjects related to technology research. We also use the extensive library of directories and Journals on various technology domains. Our analysts use blog posts, whitepapers, case studies, and other literature published by major technology vendors, online experts, and industry news publications.

Inputs from Industry Participants

Quadrant analysts collect relevant documents such as whitepaper, brochures, case studies, price lists, datasheet, and other reports from all major industry participants.

Primary Research

Quadrant analysts use a two-step process for conducting primary research that helps us in capturing meaningful and most accurate market information. Below is the two-step process of our primary research:

Market Estimation: Based on the top-down and bottom-up approach, our analyst analyses all industry participants to estimate their business in the technology market for various market segments. We also seek information and verification of client business performance as part of our primary research interviews or through a detailed market questionnaire. The Quadrant research team conducts a detailed analysis of the comments and inputs provided by the industry participants.

Client Interview: Quadrant analyst team conducts a detailed telephonic interview of all major industry participants to get their perspectives of the current and future market dynamics. Our analyst also gets their first-hand experience with the vendor's product demo to understand their technology capabilities, user experience, product features, and other aspects. Based on the requirements, Quadrant analysts interview with more than one person from each of the market participants to verify the accuracy of the information provided. We typically engage with client personnel in one of the following functions:

- Strategic Marketing Management
- Product Management
- Product Planning
- Planning & Strategy

Feedback from Channel Partners and End Users

Quadrant research team researches with various sales channel partners, including distributors, system integrators, and consultants to understand the detailed perspective of the market. Our analysts also get feedback from end-users from multiple industries and geographical regions to understand key issues, technology trends, and supplier capabilities in the technology market.

SPARK Matrix: Strategic Performance Assessment and Ranking

Quadrant Knowledge Solutions' SPARK Matrix provides a snapshot of the market positioning of the key market participants. SPARK Matrix representation provides a visual representation of market participants and provides strategic insights on how each supplier ranks in comparison to their competitors, concerning various performance parameters based on the category of technology excellence and customer impact.

Final Report Preparation

After finalization of market analysis, our analyst prepares necessary graphs, charts, and table to get further insights and preparation of the final research report. Our final research report includes information including competitive analysis; major market & technology trends; market drivers; vendor profiles, and such others.

Client Support

For information on hard-copy or electronic reprints, please contact Client Support at
ajinkya@quadrant-solutions.com | www.quadrant-solutions.com