The Path to Retail 4.0

CUSTOMER INTELLIGENCE

As the DNA of traditional retail becomes digitized and mixed with accelerating and converging technologies, the massive FMCG industry is undergoing profound change. Retail 4.0: The Age of Metamorphosis promises to be a near-total transformation in how people shop, how retailers operate, how products are distributed, and how brands manufacture and market. The development of Retail 4.0 will not be evolutionary; instead, the digital transformation of retail will be breathtaking in its scale, scope, and speed. But to realize the opportunity companies need to prepare their organizations for convulsive change, embracing new practices, processes, and business models.

The Path to Retail 4.0 is a series of papers intended to help industry participants understand and prepare for this new world.

INTRODUCTION

Since the inception of the first frequent shopper programs thirty years ago, retailers have sought to learn more about their shoppers. Those efforts have included loyalty programs and an alphabet soup of solutions like CRM (customer relationship management), CDP (customer data platforms), and PIM (product information management). But it is only recently that new technologies like AI and the cloud have enabled a quantum leap in capability.

The Oxford English Dictionary defines intelligence as "the ability to acquire and apply knowledge and skills." A multitude of companies including Oracle, SAS, IBM, and Adobe, provide customer intelligence solutions supporting specific activities like marketing personalization, digital advertising, or improving customer user experience. All beneficial and worthwhile activities - as far as they go.

Consider the complexity of actions that must be coordinated to ride a bike. Swinging your leg over the crossbar, getting on the saddle, pushing off with one foot while the other begins to peddle, all while maintaining your balance. That complexity grows enormously if embarking on a century (100 mile) ride. In addition to simply getting on the bike and starting, the rider's brain must now monitor breathing, heart rate, lactic acid buildup, muscle fatigue, calorie consumption, and far more; completing the ride requiring a coordinated response to incoming signals.

In similar fashion, activities and operations across the retail enterprise are sending forth a constant stream of signals attributable back to customers, things like purchase transaction data, in-store location data, shopper digital behavior, demographic and third-party data, and far more. A retail 'brain' is needed to ingest all the disparate signals, process the data, and coordinate a response - the retail equivalent of completing a century bike ride.

Too many retailers though act as if they have suffered an organizational stroke, misreading incoming signals and misfiring commands; the result being an organization out of sync with itself. Aggressive weekly ads promoting cherry-picking and shopper promiscuity. Service levels not tied to peak shopping times of the most valuable customers. Store director and executive performance incentives tied to product sales and margins - often at the expense of growing customer value and retention.

CUSTOMER INTELLIGENCE PLATFORMS

[The Brain of the Retail Organization]

In the world of Retail 4.0 customer intelligence must be sophisticated and organizationally pervasive, going far beyond point solutions. A customer intelligence platform brings together and synthesizes data from across the retail enterprise and the outside environment to create complex, highly-evolved, profiles of each individual customer; the digital customer doppelgänger introduced in **Retail 4.0: The Age of Metamorphosis.**

A customer intelligence platform underpins a retailer's overall vision, providing powerful new information to the company's traditional market, product, and competitive strategies. A customer intelligence platform can also put traditional retailers on equal footing with their new digital native competitors. Consider a company like Instacart, recently valued at $39b - more than Kroger and

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Albertsons combined. Yet Instacart has no physical stores and no product inventory - the two largest assets of traditional retailers. What Instacart does have is a vast trove of customer data, knowing product level purchases for each of its customers.

Birdzi is one such company bringing this new age of customer enlightenment to life. A young tech company founded by experienced data scientists with pedigrees in the human genome project, AT&T Bell Labs signal processing, and global financial services, Birdzi combines the latest technologies with an untraditional approach to solving retail's challenges. Unlike the point solutions mentioned earlier, Birdzi has created a more holistic vision for retail customer intelligence.

Seeking to simplify the complex, Birdzi uses the constantly evolving shopper profiles to create a set of metrics that unifies shopper behavior and value. The Birdzi team has created two unique scores synthesized from the big data ingested into their platform that act as foundational cornerstones and serve to align disparate retail activities. These scores establish a common language across the retail organization, creating the single source of truth needed to drive alignment and synergy across countless activities and initiatives.

The KIC™ score is a reflection of customer quality and value, synthesized from hundreds of attributes and calculations maintained at the individual customer level. Incorporating spending, visit frequency, breadth of departments and categories shopped, profitability, and far more, the KIC™ score is analogous to the pervasive FICO scores used by the financial industry.

Alongside the KIC™ score is Birdzi's RCLV (customer lifetime value) score that, in a unique spin, measures the projected remaining lifetime value each shopper represents to the retailer.

While creating analytics like Birdzi's KIC score and RCLV from the shopper profiles created in the customer intelligence platform are powerful, unifying forces used across the retail organization, they are only the beginning.

Yuval Harari, in his history-spanning book Sapiens, explains how life on earth developed over millions of years, arising from the primordial soup. For nearly two million years, multiple human-like species co-existed, none gaining any lasting advantage. But then around 70,000 years ago a genetic mutation occurred, triggering a cognitive revolution that enabled homo-sapiens to quickly advance beyond all other species. That cognitive spark changed the world, giving rise to language, in turn enabling imagination, conceptual thinking and more. In a relative blink of an eye, homo -sapiens quickly advanced beyond all other species.

Artificial intelligence provides the cognitive spark that lights up the retail customer intelligence brain.

Artificial intelligence provides the cognitive spark that lights up the retail customer intelligence brain. Just like our bike rider does not consciously monitor every incoming signal, her brain processing the myriad signals automatically, cutting edge customer intelligence 'brains' are able to automate a growing number of what have been manual, iterative, human directed processes.

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CUSTOMER COGNITION

To fully understand the impact of AI and expert systems on retail its important to first understand how our human brains process data and information. It has been calculated that our brains can process around 41 bits of data per second, and this imposes a strict limitation on how much information we can handle. *"Out of all the millions of bits that enter all of our sense organs from our eyes to our sense of smell only a very tiny fraction is made available to your consciousness. Most of the data and information is lost to your conscious mind. To put it simply only about one millionth of all the data and information from your senses make it into your consciousness."* (Brian Roemmele)

It's the constraint imposed by our brain's processing bandwidth that leads us to group or categorize things so as to manage them. A case in point is product category management. A human being is incapable of processing data and information on 50,000 individual SKUs in a timely manner. If we were to address each SKU sequentially it would take forever to work through all of them. Far easier to group the individual SKUs into categories and process the category information, then drill down as needed.

The understanding and use of customer data has followed a similar evolution. When the first retail loyalty programs appeared, the focus was on 'best customers', a nascent understanding of customer behavior and value. Then, as understanding evolved, retailers grouped customers into segments (new shoppers, secondary shoppers, lapsed shoppers, etc.). Leading practitioners would, after exhaustive study of a segment's behavior, design marketing strategies to impact shoppers, for example, creating programs to grow shopper spending that were targeted to all 'secondary' segment shoppers.

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THE POWER OF AI EXPERT SYSTEMS

Here is what makes AI expert systems so powerful: These technologies effectively magnify the power of our human brains so that appropriate strategies are developed automatically for each individual customer at scale, systems able to process millions of shoppers and react to minute changes in behavior in realtime. Retail 4.0 brings with it disruptive change in how retailers understand and market to their shoppers: The ability to effectively address and grow each customer individually at massive scale.

To see where this leads we'll continue with the example provided by Birdzi. Understanding that business process automation is a key disruptive force in the age of Retail 4.0, Birdzi creates AI models deconstructing the shopper's KIC™ score to automate the development and application of strategies at the individual customer level to grow and improve customer value and quality.

And just how effective is AI driven strategic personalization? Campaigns realize substantial return on investment driven by increases in spending and shopping frequency. What is perhaps most impressive are the gains to customer engagement: A nearly 40% gain in the number of categories shopped, an increase of over 10% in the number of shoppers redeeming digital promotions for the first time, and over a 35% increase in reactivating shoppers.

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Imagine the retailer's customer intelligence brain automatically creating campaigns at the individual customer level, designing the strategy and recommending specific promotions to use, the marketer only having to hit the 'Easy button' to accept the recommendations or adjusting the projected budget to fit business plans.

CUSTOMER-FIRST RETAILING

Customer-first as a retail business strategy has slowly made its way across the industry, beginning with Kroger's efforts over fifteen years ago, subsequently spreading to other national retailers, regional chains, and even smaller retailers. But too many retailers believe marketing personalization is synonymous with customer-first, that by bolting on a marketing personalization solution they will magically reap the benefits of a customer-first philosophy. But there is far more to it.

In the world of Retail 4.0, true customer intelligence platforms are designed to support a comprehensive customer-first approach by coordinating operations, activities, and initiatives across the enterprise.

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- **Management:** If retailers are truly serious about becoming customer-first, the philosophy and strategy must be driven by the C-suite and executive team. That starts with adding key customer metrics to the traditional daily and weekly reporting executives look at: Rolling measures of customer retention, growth in customer lifetime value, increases in customer 'quality', and more.

- **Marketing:** Ultimately, the goal of marketing is to acquire, grow, and retain customers - all things that can be objectively measured by a customer intelligence platform. The sophisticated shopper profiles, combined with powerful AI models, provide the basis for accomplishing those goals using automated strategic personalization across all customer touchpoints.

- **Merchandising:** Category managers can efficiently grow category performance by bringing customer lifetime value scores and deep knowledge of brand loyalty and discount propensity to targeted campaigns developed in collaboration with their CPG brand partners. An emerging area leverages insight to a shopper's health & wellness profile and even health conditions to evaluate product assortment by category, for example, understanding the relevancy of product assortment in stores with a significant population of shoppers with diabetes.

- **Operations:** Knowing when a store's most valuable shoppers visit should inform scheduling and production in service departments. Reporting customer retention / defection rates at the store and department level can serve as an early-warning indicator of problems.

- **Finance:** In the world of Retail 4.0 customers are a measurable asset. Just as companies report the value of physical inventory and measure product shrink, so too can retailers report the assortment and value of their customer 'inventory' and related shrink (customer defection).

- **Human Resources:** Leading practitioners of retail focused customer intelligence use new metrics like customer retention, or improvements in lifetime value scores or Birdzi's KIC™ score in determining performance incentives for department and store managers and even into the executive team.

RETAIL 4.0
[Customer Intelligence Platforms]

As the fast moving consumer goods retail industry rushes into the Retail 4.0 future, possessing and strategically using customer intelligence is a bedrock principle requisite for success. For the countless retailers who have a loyalty program and some considerable level of customer identified purchases its time to up the game, moving from incentives and basic personalization to the world

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of AI powered automation and strategic personalization. For those retailers lacking substantial levels of customer data, its time to get in the game and figure out a way to collect the data and then use it.

Some things to look for in evaluating potential solution partners:

- Look beyond customer intelligent point solutions to platforms that are able to bring together the disparate data signals flowing from all parts of your organization to synthesize shopper profiles that can be used to support activities and initiatives across your company.
- Focus on creating the neural pathways across your organization that feed customer data to your retail 'brain' and communicate coordinated action back to the various departments and operational areas.
- As you evaluate customer intelligence solutions, look for tech infrastructure that supports the realtime flow of data and continuous updating of individual customer profiles.
- Demand a data architecture that can readily ingest new data sources, making available countless new attributes that are synthesized into creating the digital customer doppelgängers, able to provide ever-more sophisticated insights to your shoppers.
- Look for customer intelligence platforms that directly extend into marketing and merchandising and are able to intensively scale strategic personalization used by marketers to power customer acquisition, growth, and retention, and used by merchandisers to grow category performance through a customer lens.
- In addition to marketing and merchandising, look for customer intelligence platforms that support creation of third-party apps that can be used to extend customer intelligence into all parts of the retail organization. For example, a store-level scheduling app that incorporates knowledge of when different types of shoppers are in the store.
- One of the pillars of Retail 4.0 is automation, especially business process automation. Evaluate possible platform solution providers by their ability to automate tasks across your company leveraging the vast customer knowledge they possess.

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5 years. 60 months. 260 weeks. 1,825 days.

That's how long this retail industry metamorphosis is going to take. The digital transformation of retail has already started. And as Davenport so clearly calls out, time is of the essence.

The clock has started.

Retail 4.0 is the radical reinvention of retail, driven by the digitalization of nearly everything across the organization and across the supply chain. The automation of physical work and business processes over the next several years will drive dramatic change. The development of digital networks encompassing digitally engaged customers opens the door — for the first time — to exponential value creation for traditional retailers.

Retailers have no time to lose. The time is now to re-envision the future. Begin the process of assessing where you are today and understanding where you are going. Put in place a process to understand, discover, and deploy new innovation. And embrace the possibility of an exciting future.

There's no time to waste.

Gary Hawkins has lived his career ahead of the curve, putting him in the right place at the right time to help guide the fast moving consumer goods retail industry into the future in a time of exponential technology growth using never-before-available capabilities to innovate the future of shopping. Hawkins is the Founder and CEO of CART **(Center for Advancing Retail & Technology).**

Drawing on his work advising leading companies around the world, Hawkins is a regular guest lecturer at Georgetown University's McDonough School of Business in addition to keynoting retail conferences in the US and abroad. Hawkins is the author of three books including the latest, Retail in the Age of 'i', that explores the future of retail propelled by the exponential growth of technology. **Retail Mindsteps** (retailmindsteps.com) serves as Hawkins' personal blog and repository of the myriad articles and papers written for industry publications where he distills the complexity of tech-fueled retail innovation into digestible and actionable insights.

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