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Driving retail growth by leveraging analytics



Foreword

Data generated from the various digital touchpoints is already providing insights into customer behaviour. In this report, we will discuss how analysing data captured across the value chain can help deliver a superior customer experience and place the retailer on the path to long-term profitability.

PwC's Total Retail Survey 2016¹ reveals the behaviours that will usher in the next retail revolution. Trends like new payment types and variable store footprints continue to redefine ways in which consumers are interacting with retailers. Although stores remain an indispensable part of the shopping journey, digital channels have become the first touchpoint for consumers today.

CEOs of retail and consumer goods companies who were interviewed as part of PwC's 19th Annual Global CEO Survey rated data and analytics technologies as their key area of focus. The new operating model will be customer centric, with data analytics at the heart of the decision-making process, enabled by appropriate technology and tools.

In this hyperconnected, information-driven age, data and analytics are playing a major role not just in effectively tracking growth but also in driving strategies for sustainable and profitable growth. Rapid advances in digitisation and the resultant changes in consumer behaviour have redefined the retail business operating model and the value proposition.

While physical retail constitutes a larger share of total retail, online retail continues to show accelerated growth. This is because the latter offers convenience in terms of anytime, anywhere gratification, along with the best deals on products. Retailers today do not just sell products; instead, they are offering services which focus on delivering a differentiated experience.

Many leading retailers have merged their online and offline divisions so that the same team oversees merchandising, planning and marketing for their physical stores and e-commerce. In-store customers are now able to browse products and place orders on handheld devices, following which they can pick up their items from a collection point. Retailers are improving their profitability by merging in-store and digital operations.

Retailers are taking to social media with campaigns and promotion activities. Clearly, social media is the 'great influencer', as also indicated by our Total Retail Survey 2016.

Retailers are now focussing on offering a differentiated in-store experience. While in-store customer traffic has been an important metric to measure marketing spend effectiveness and conversion rate, digital channels are becoming important touchpoints for an omnichannel experience. With this wealth of customer data, retailers will be able to drive newer strategies for revenue generation and cost management in the race towards turning profitable.

The new challenges retailers are facing today include engagement, digitisation, trust and disruptions.

Customer engagement: How do we constantly find ways to be relevant in the lives of the customers, appeal to their emotions and thus be invited to interact?

Information integration: How do we radically simplify and remove the friction in systems in order to dramatically reduce the cost of a product or service through efficiency, as well as enable the creation of a flawless, seamless, easy and enhanced customer experience?

Enhancing trust: How do we develop emotional intelligence and learn to incorporate the art of rapport building into data science? Customers are people, and brands need to behave with the social respect that emotionally aware people display.

Creating disruption: How do we use customers as an ally and an asset to refine and constantly challenge the relevance of their value proposition and customer culture?

A structured analytics-driven approach can help retailers successfully undertake the journey from discovery to trust, description, prediction, optimisation, empowerment and finally embedding of intelligence in their existing operations workflows.

Retailers can use the business insights generated from analytics to effectively align physical and digital

1. www.pwc.com/gx/en/industries/retail-consumer/global-total-retail.html



store operations under a single management team with incentives that are agnostic to channel of sale.

They can set up flexible data infrastructure that is able to build a 'single view of a customer' and deliver real-time operations.

As a result, retailers would be able to successfully spot opportunities, quickly assess ideas and test and learn from these experiences.

They would be able to innovate continuously and understand and embrace new business models. Data and analytics would act as a core enabling capability and help them to exploit the latest technologies to deliver better digital experiences for their customers and integrate digital channels and operations into the fabric of their businesses.

Data and analytics would help retailers to understand how their customers are using their products and services, how their operations and supply chain are performing, how to manage their workforce and how to identify key risks—insights that they then can then act upon.



Analytics as a lever for profitability

Data and analytics are revolutionising businesses today. This is reflected in PwC's 19th Annual Global CEO Survey (2016),² which shows that 68% of the global CEOs see data and analytics technology as generating the greatest returns for stakeholder engagement.

This report will explore how data analytics, when integrated into loyalty programmes, pricing strategy, marketing analysis, space planning, and innovation, can be effectively used for profitable growth. The components of a successful retail analytics strategy comprise the following six areas:

based approach to in-memory real-time analytics to process requests virtually in real time

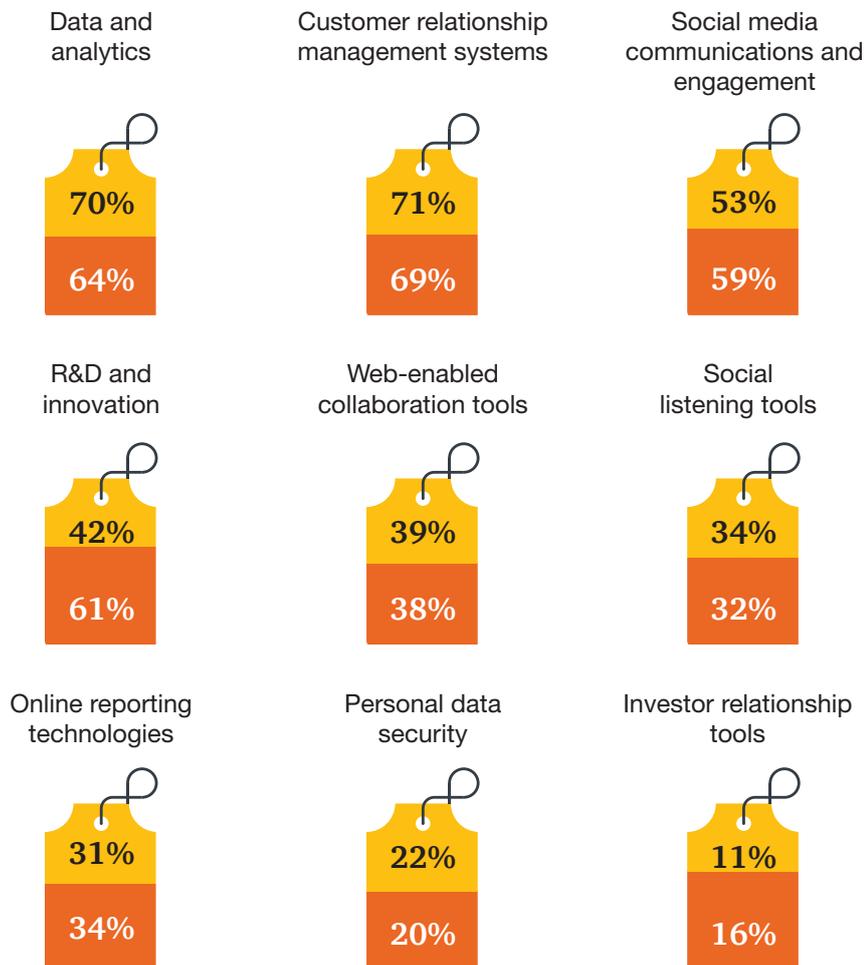
Predictive modelling: Developing an analytical model to predict future outcomes and empower business users to take decisions quickly

Big data and hybrid architectures: Convergence of structured and unstructured data through data integration across apps, sensors, social media and other channels

Cloud analytics: Highly scalable and easy way to store and access relevant information, which allows users to access more data faster

Advanced visualisations: Present data in visually compelling ways, enabling companies to expand business intelligence capabilities extended to their executives and other employees

These components can help the retailer to create a truly advanced analytics programme and to capitalise on the valuable insights generated to better connect with customers and increase profitability.



■ Retail ■ Consumer

Base: All respondents (Retail: 148, Consumer goods: 210)
Source: 19th Annual Global CEO Survey

It has emerged as the single most important information system for CEOs, and they are now viewing data and analytics solutions as directly contributing to organisational profitability. There is an increasing focus on building analytics solutions and embedding them in the existing workflows of organisations.

Self-service analytics: Making analytics a more democratic process by allowing users to make decisions based on their own queries without requiring any sophistication

Real-time in-memory: A move ahead of the traditional relational database

2. <http://www.pwc.com/gx/en/ceo-agenda/ceosurvey/2016.html>

Retail analytics framework

Retail analysts can generate deeper insights across the entire value chain of retail operations, including procurement, supply chain, sales and marketing, store operations, and customer management.

Based on our experience of working with multiple retailers, we have identified a retail analytics framework that can be used to structure their programmes in four areas:

- Merchandising
- Marketing
- Supply chain
- Store operations

Merchandising analytics: Retailers can use merchandising analytics to stock the right product at the right place at the right time. Merchandising analytics enable planners to align their merchandising decisions with customer expectations. The key areas of merchandising analytics are assortment planning, product adjacency and space allocation.

Marketing analytics: To keep up with changing customer demands and ensure loyalty, retailers need marketing analytics for deeper customer insight, targeted interactions and improved

customer service. Marketing analytics quickly combine all relevant customer data—from point of sale systems, customer relationship management system, loyalty cards, etc., with social media data—perform sophisticated analytics, and share insights to help optimise marketing decisions. It can help to deepen customer insight, optimise multichannel performance, improve marketing effectiveness and enhance social media presence.

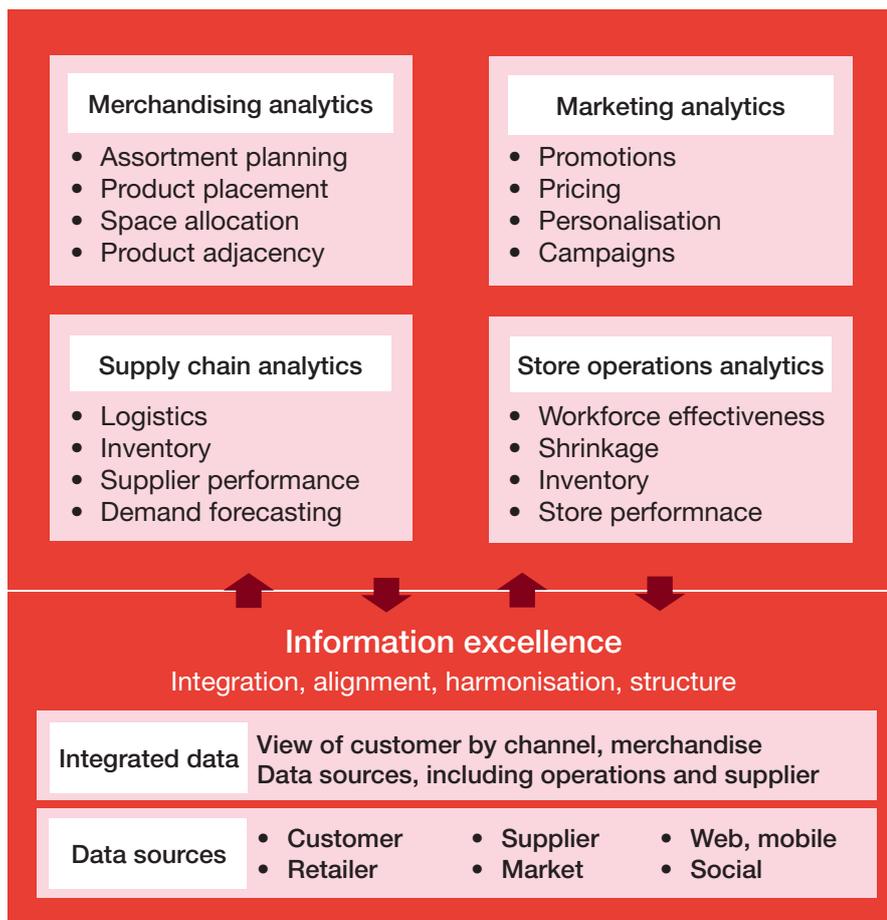
Supply chain analytics: Retail profitability is directly impacted by the logistics efficiency to maximise demand fulfilment and avoid any back orders or stock-outs. These include interventions in logistics, inventory and supplier performance.

Store operation analytics: The performance of retail operations depends on various factors, including the effectiveness of the store staff, the cost incurred on them, reduction of pilferage from the store, management of inventory at the right levels and improvement of the overall staff performance.

The important component of a successful analytics framework is an efficient information excellence backbone which integrates the data from various data sources like customers, point of sales, suppliers, market, and social media, and stores it in a ready-to-use format for various analytical modelling applications.

The choice of technology would depend on the existing technology landscape, the budget of the retailer and the functionalities that they would like to have in their analytics solutions.

Retail analytics framework



Merchandising analytics

A retailer's assortment is the set of products it carries in each store at each point in time. Retailers periodically revise their assortment for each category, removing slow sellers and adding others to account for changes in customer demand over time as well as new products introduced by suppliers. This periodic assortment reset seeks to choose a set of stock keeping units (SKUs) to carry in the new assortment in order to maximise revenue or profit. Constraints like shelf space inhibit the number of SKUs that can be carried.

While planning assortments, retailers have to take into account many considerations. For instance, how will sales change if the number of products carried in an assortment is increased or decreased? What is the likelihood of customers buying a substitute product if they do not find the product of their choice? What are the benefits of localising a category? How many store clusters should be formed, for each to carry different assortments? What are the right matrices to use while segmenting stores? What are the likely sales of products they are considering to add to their assortment? Careful analysis of SKU data will help retailers answer these questions and improve their bottom line sales.

Retailers find it difficult to make assortment decisions since the variables

are so large that it is not humanely possible to undertake optimisation based on intuition and experience only.

For instance, in order to declutter its stores, one of the retailers removed 15% of the SKUs it carried. The move triggered an immediate decline in sales and the retailer eventually had to roll back most of the changes. Another example is that of a retailer of home items which witnessed an 18% increase in revenues when it localised 1 of its 35 categories for five store clusters. However, when it applied the same process to another category, it enjoyed no lift in revenue and hence abandoned its localisation efforts.

Analytics holds the key to optimising assortment. For each SKU, retailers can identify a few attributes, such as brand, package size or flavour, that are meaningful to customers. They can then use the sales of existing SKUs to estimate the future demand at attribute level and further use these estimates to forecast the demand for any combination of attributes, including those that correspond to new products the retailer is considering to add to its assortment. Analytics lets retailers discover new products that have high chances of selling well. For example, if a retailer finds that one of its stores sells many smartphones of brand X and batteries for phones of various brands but not for those of brand X, then it would

be a good idea for it to add batteries of brand X to its assortment. Moreover, these techniques will help in identifying potential sales loss. For example, a retailer thinks that customers do not want to buy product of type A, so it offers a limited amount of it and thus doesn't sell much of it, thereby confirming its assumption that customers did not want product A. However, this may not actually be the case. In a study of tires, where the attributes were size, brand and mileage warranty, the lowest-priced brand had only a 10% share of the retailer's sales. However, it was found that the retailer only offered this brand of tires in a limited number of sizes. Despite this, the brand outsold the next highest priced brand by 40:1 and had a 61% share. This retailer offered a limited selection of the cheapest tire because it thought this could get customers to trade up to a higher priced brand, but data showed that this switch occurred only 45% of the time. It was not true in the remaining 55% cases and, given the 61% share of the brand, resulted in a loss of one-third of potential sales.

This clearly demonstrates that thoughtful assortment optimisation can have a significant impact on a retailer's profitability.



Marketing analytics

The two important areas under marketing analytics are pricing and promotion analytics.

Pricing analytics: With extensive competitive pressure and price transparency, pricing has become the key focus for retail companies. As a powerful tool to define product and brand positioning and as a key monetising tool, pricing can turn out to be the single biggest profit lever for retailers. PwC's Total Retail Survey 2016 clearly indicates that price is the biggest factor for customers to determine their shopping destination.

Based on the product life cycle, six pricing analytics approaches can be used: price setting, pricing structure, cross-/upsell, promotional pricing, profit leakage and markdown.

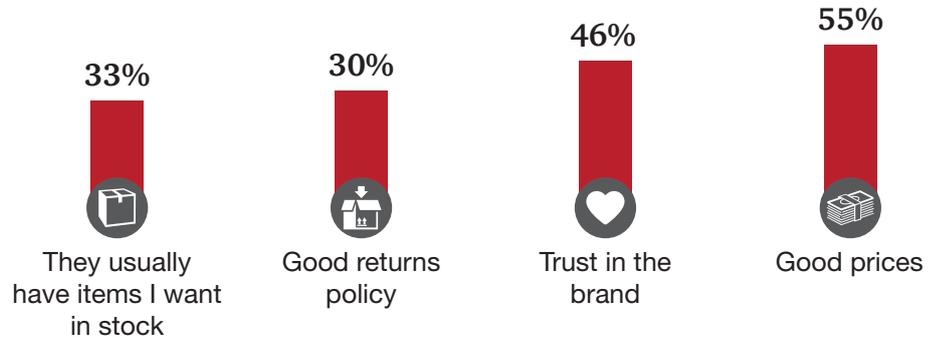
Price setting: Pricing models can be implemented using competitive, cost and elasticity levers to establish ideal price ranges. Although price elasticity is a great way of identifying ideal pricing, it needs to be applied in the proper context; otherwise it may not lead to the desired results.

Pricing structures: With pricing of products becoming an important exercise while implementing direct-to-customer strategies, it is imperative for retailers to consider an approach which is verifiable and effective in optimising customer lifetime value. The key applications are subscription-based pricing, value-based pricing, customer lifetime value analytics, etc.

Cross-/upsell: Simply put, this is the art of selling more through product recommendations. Sales staff in brick-and-mortar stores and panels that display frequently bought products while shopping online have proved to be sure-shot ways of encouraging consumers to buy more.

Promotional pricing: As consumers, we are all familiar with retailers offering heavy discounts on products

Top five factors influencing consumers' choice of their favourite retailer: 2015



Source: PwC's Total Retail Survey 2016: India report

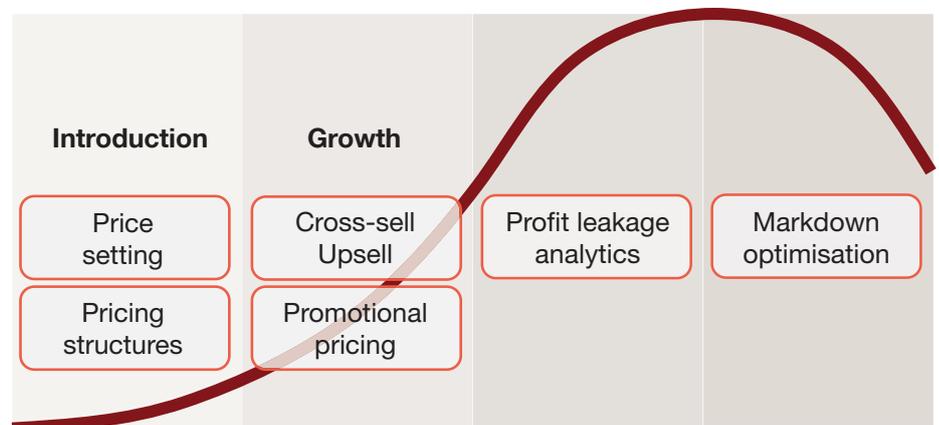
during sales. Retailers often use this technique to encourage customers to buy more or, recently, as an ongoing customer acquisition strategy. Analytics can help retailers enhance the benefits derived from promotional pricing by establishing baselines for gauging promotion effectiveness. Here, analytics focusses on key areas such as promotion optimisation and trade promotion effectiveness.

Profit leakage analytics: Multichannel and omnichannel strategies necessitate that retailers devise efficient cost-to-serve models. Analysing transactional data can help smooth operational challenges and drive higher profit margins.

Markdown optimisation: Seasonal discount campaigns ensure that retailers are able to achieve category sales objectives within a specified period. Markdown optimisation helps establish flexibility in pricing for discontinued and obsolete products. This approach allows the retailer to pay close attention to profit margins and markdown budget, and maintain competitiveness in pricing.

Retailers must become adept at using pricing to improve the top or bottom line. While devising an appropriate pricing strategy is a long and engaging journey, it is important to have a holistic picture in mind and adopt an agile approach.

Product life cycle and pricing approaches



Source: PwC analysis

Promotion analytics:

In today's high-mobility and always connected world, customers can research competitive offerings while standing in a store aisle. Moreover, while they are less likely to remain loyal towards a brand or store, the probability of them reporting their retail experience on social media in real time is high. In such a situation, where retailers are witnessing decreasing margins, they must relook and constantly improve their strategies

Top customisable benefits

said personalised marketing offers



38%

said access to special member events



23%

said access to exclusive member-only areas



20%

Source: PwC's Total Retail Survey 2016

for engaging with their customers in order to adopt a customer-centric approach that drives loyalty and thus more footfalls and sales. In the current market, 'loyalty' means moving a customer from a first-timer to repeat shopper. Retailers must realise that they need to go beyond mere rewards, points and discounts, and move towards creating a personalised shopping experience that recognises individual customer needs.



of our global sample are members of a loyalty/reward programme.

Source: PwC's Total Retail Survey 2016

By understanding the key benefits, retailers can potentially integrate personalisation, connection and engagement into their loyalty plans. Loyalty analytics is a key tool for achieving these objectives.

Predictive models can help retailers analyse past performance to assess the likelihood of customers exhibiting a specific behaviour in order to improve their marketing effectiveness. Besides, using data mining techniques, customers can be segmented into groups with similar shopping behaviour, based on which each group can be targeted with discounts or rewards.

Campaigns with tailored promotions are developed by gaining deeper insights into the customer's basket and determining his lifestyle and sensitivity to price. That is, by analysing the types and price range of products in the basket, the retailer can group the customer into one of the lifestyle segments. For example, a customer can be deemed health conscious if, over a period of time, his shopping basket consists of fresh fruits, vegetables, dairy, eggs, fresh meat, etc. Dynamic discounts can be offered based on the price sensitivity of customers. For instance, if a customer's basket suggests a penchant for private label brands which are priced slightly lower than similar branded items, the retailer can use this additional information, along with the knowledge of the shopping habits and lifestyle segment the customer belongs to, to accordingly target him with tailored coupons which offer a better discount on the private label of the category he most frequently purchases.



Supply chain analytics

Retailers are faced with daily inventory decisions and often lack the time and tools to take a step back and strategically address how to better align supply and demand.

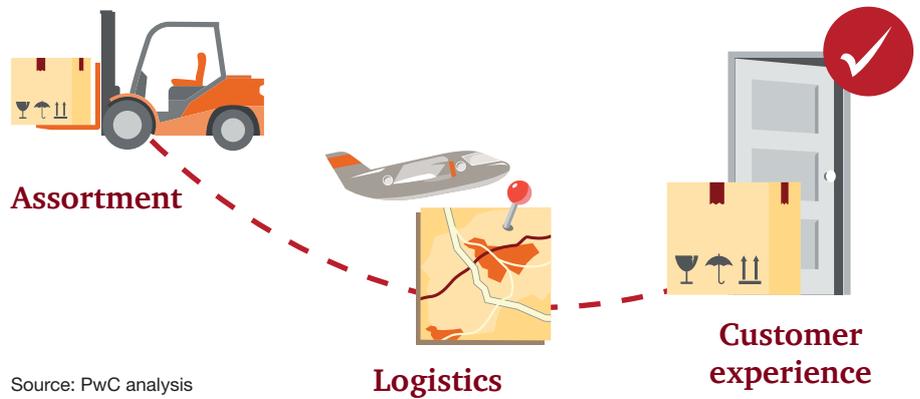
Adopting a forward-looking and analytics-based approach to inventory management gives retailers a clear view of how much is left on the table with their current inventory replenishment strategy and the impact of alternative strategies. This enables the retailer to take a more informed decision about which replenishment strategies better align supply and demand, reduce excess inventory, cause fewer lost sales, and improve customer experience.

Mobile technologies, cyber security and data analytics are important areas of investment for retailers. These can help them to significantly improve their operational efficiency and deliver a better customer experience.

Retailers are adopting different innovative ideas and operating models, including partnering with online marketplaces or setting up their own online stores, to get maximum benefits from e-commerce. The lack of an integrated end-to-end logistics platform is causing delivery issues. Challenges around reverse logistics management and third-party logistics interactions are barriers to growth.

In addition, the continuously expanding product portfolio and planned discount sales have been creating difficulties in last-mile fulfilment, especially in remote areas with a large population. Controlling logistics and on-ground fleet management, especially courier companies, is essential for growth. Analytics can help through route and network optimisation.

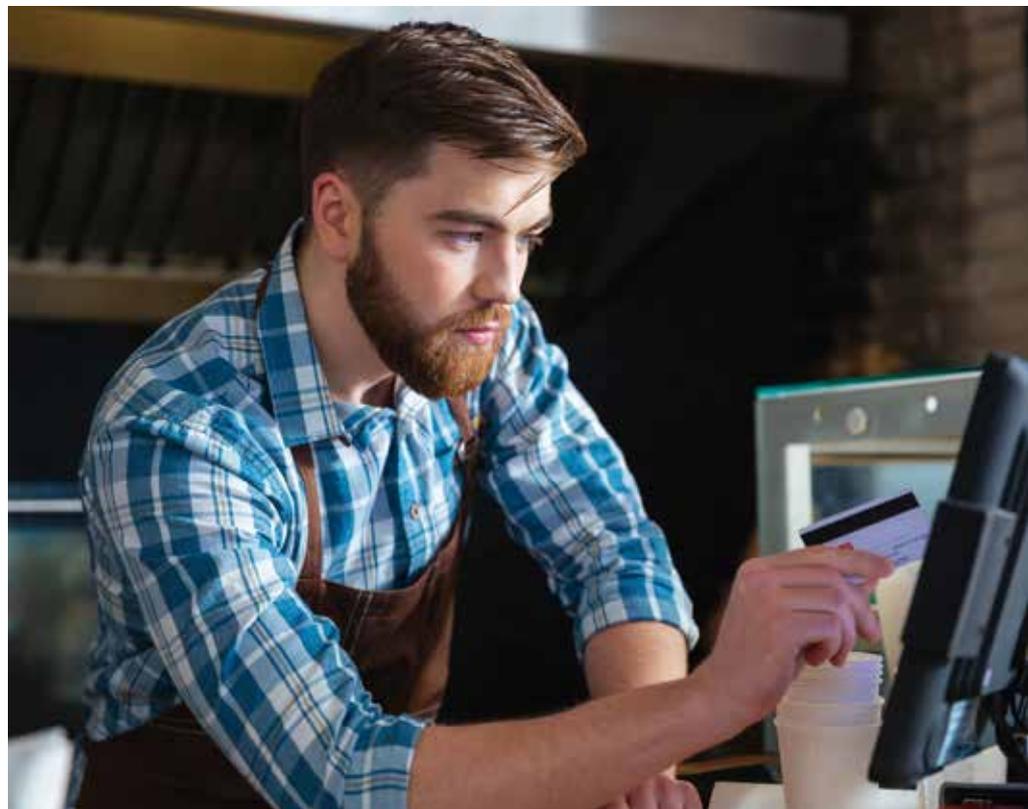
Advanced analytics solutions using a global positioning system (GPS) can help in tracking the movement of the fleet, understanding the behaviours of the drivers, identifying hazard points on the routes, etc. This can help in reducing the overall costs and make logistics safer and efficient.



Source: PwC analysis

Retailers are benefitting from strategic alliances with their suppliers and service providers for their e-commerce channel. Companies are trying various partnership models such as store pickup and tie-ups with kirana stores to reduce their fulfilment costs. They now have the ability to control and monitor a parcel till its delivery to the

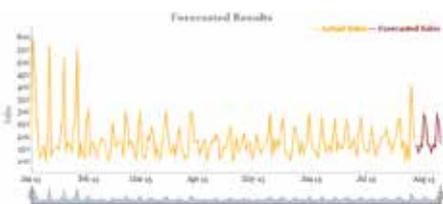
consumer. The ability to track and predict delivery times helps these companies to communicate with consumers more promptly, leading to a seamless shopping experience. Logistics, therefore, is of utmost importance not only for driving a superior customer experience, but also for creating a sustainable long-term competitive advantage.



Store operations analytics

The data generated by store operations in real time can be efficiently used by developing analytics models to optimise the store and staff performance.

The store manager faces the constant challenge of maintaining its staff levels at the right size and finding the ideal mix of part-time and full-time employees to keep its staff costs as low as possible. Analytical models can forecast the demand based on seasonality, campaign dates, festive events and marriage periods, and identify their impact on store staff requirement. These could be then used to optimise staff requirements as well as the staff mix to minimise costs.



Retailers can reduce shrinkage by identifying patterns in shoplifting in their stores, such as location of store, time of the day, type of shoplifting, employees on duty and products stolen. Based on this, they can undertake initiatives such as providing training to employees, increasing coverage of radio frequency identification (RFID) tags, installing cameras in certain areas and ensuring tighter observation based on specific intelligence generated from analytics.

Internet of things (IoT) sensors are fast becoming a complete ecosystem where software, cloud computing and analytics tools are turning raw data into meaningful information or predictions. When presented on easy-to-use interfaces (such as dashboards or mobile apps), this information enables retailers to monitor and automate responses.

More and more retailers are adding sensors to people, places, processes and products in order to gather and analyse information for better decision-making and greater transparency. Predictive analytics applications process this data, optimise the supply chain and decrease inventory shrink. Retail stores are increasingly adopting sensors to determine inventory levels and restock shelves automatically.

Location analytics can map how customers move through a store. Using a combination of IoT-enabled product and shelf sensors, cameras and RFID devices, one can track which sections of the store receive the most traffic in general over different hours of the day and week. Based on the insights, workforce planning can be done and an optimised workforce schedule can be chalked out on a daily basis, resulting in effective customer service. Further, heat sensors can be employed in stores to track customers' movements. These

sensors help identify the high-traffic areas, which will allow the company to better position its products.

Going forward, retailers can view IoT as a tool that enables them to help their customers through innovations such as smart price tags that can change prices in real time, mirrors that allow a person to try clothes on virtually, and packaging that monitors the freshness of goods and alerts the consumer when they are nearing the end of their shelf life.



	Significant variables	Coefficients	Impact on shrinkage
1	Average training hours per employee	-0.27	Negative
2	Employee to customer ratio	-0.24	Negative
3	Coverage of RFID tags	-0.19	Negative
4	Percentage of employees working full-time	-0.01	Negative

Adoption of analytics

While many retailers have started their analytics journey and are at various stages of maturity, they are still struggling to identify the most appropriate model for sustainable analytics implementation. Retailers can adopt analytics across their enterprise using various options:

- **Organic in-house:** The retailer augments its in-house analytics team gradually over a period of time and introduces analytics in a phase-wise approach. However, this is a slow process and the time to first insight increases drastically.



- **Inorganic in-house:** The retailer buys an analytics company which can start working on various analytics projects across the enterprise. This approach can improve the time to value; however, there are integration issues and the analytics resources may take some time to understand the organisation processes and culture.
- **Primarily outsourced:** In this case, the entire analytics work is completely outsourced to an external vendor who ingests the various data feeds from the retailer, performs the analysis, and sends the results and insights back to the retailer. This approach can deliver quick results, but in the long run, it can prove to be an expensive proposition for the organisation due to reliance on the external vendor, along with loss of control on analytics operations.
- **Hybrid model (recommended):** This approach is a combination of the in-house and outsourcing approaches. An external consultant works with the retailer to set up an analytics centre of excellence and to co-create various analytics models on its premises. This not only helps in gaining access to the latest best practices prevalent in the market but also keeps the retailer in control at all times.

The path to return on investment (ROI) is not as clear as it is in other industries. Hence, it is critical for retailers to embed analytics in their operations. Analytics will not only help in identifying opportunities for growth but also in developing innovative solutions for product development and customer service, while also assisting in the evolution of new business models.

Data-led insight has the power to add business value to every part of the value chain and to every area of business decision-making. As we rapidly move towards a connected retail environment, companies need to master the full potential of the customer data that is collected at numerous digital touchpoints. Retailers have already started putting data analytics at the heart of their operations across the value chain—procurement, supply chain, sales and marketing, store operations, and customer management. They now need to establish a big data ecosystem which processes multiple terabytes of new data and petabytes of historical data. This will help them improve their revenues through analytics based decision-making.

	Organic in-house	Inorganic in-house	Primarily outsourced	Hybrid model	
Time to value	✗	↔	✓	✓	Suggested approach for retailers
Total cost of ownership	↔	✓	↔	✓	
Access to latest best practices	✗	↔	✓	✓	
Control of operations	✓	✓	✗	✓	



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Our India Retail and Consumer practice has been working with the Fortune 500 companies, helping them enhance value. Developing the market entry strategy for global companies, location assessment based on the target audience, streamlining the supply chain and distribution system, deploying IT strategy, linking customer data using analytics, managing the inventory and ensuring customer delight are among the gamut of services we offer our clients to help them in their journey to success.

Our clients in the Retail and Consumer goods sector operate in different formats, ranging from supermarket chains to food and beverage manufacturers and from luxury goods retailers to consumer packaged goods manufacturers and agribusiness companies.



Contacts

Anurag Mathur

Leader, Retail and Consumer

Email: anurag.mathur@in.pwc.com

Kalyani Palkar

Email: kalyani.palkar@in.pwc.com

About our Analytics practice

Our Analytics practice has been working with leading organisations across the globe, helping them with strategy and needs assessment, benchmarking, process management, vendor and tool evaluation, model implementation, financial modelling, analytics competency centre set-up as well as support and change management.

We have executed multiple projects across the retail and consumer, insurance, banking, private equity, manufacturing, mining and utilities, telecom, automotive, healthcare, pharma and government sectors.

We are experts in implementing analytics solutions through leading market tools by aligning them to the client's technology landscape.

Sudipta Ghosh

Leader, Analytics

Email: sudipta.ghosh@in.pwc.com

Raman Bhushan

Leader, Retail and Consumer Analytics

Email: raman.bhushan@in.pwc.com

Saurabh Bansal

Email: saurabh1.bansal@in.pwc.com

Sumit Chopra

Email: sumit.chopra@in.pwc.com

Arshveen Kaur

Email: arshveen.kaur@in.pwc.com



Notes

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