Ivey | Publishing

W33834

# NATA SUPERMARKETS: CUSTOMER ANALYTICS

*Leslie Wu and Zain Huda wrote this case under the supervision of Bissan Ghaddar solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.*



In January 2022, Vina Verago, the vice-president of technology for Nata Supermarkets, was reviewing the company's performance against its competitors for the 2021 calendar year. The company had been performing poorly both based on its internal metrics and against competitor growth rates. Upon further inspection, Vina identified two key internal metrics related to the subpar performance: promotion targeting and product inventory. Historically, the company had trouble understanding its customers and predicting their behaviours and preferences. Vina also noticed that many competitors began revealing new data analytics initiatives in their annual reports. Many companies experienced industry-leading growth because of these changes and upgraded their guidance for the following year.

A major competitor, Walmart Inc. (Walmart), was one of the earliest adopters of data-driven business decisions. The company was among the first to form an analytics and machine learning division. It conducted research on how to optimize all parts of the business by leveraging data and building relevant statistical models to extract meaningful insights. Walmart'sin-house pharmacies were made more efficient by running simulations on demand to fill prescriptions more quickly. Predictive models were used to anticipate checkout demand and determine the best form of product checkout for their customers. Through purchase analysis and segmentation, customer behaviours were derived to inform product assortment decisions. Other large competitors were also investing in analytics and innovation to improve customer satisfaction.[1]

In the current landscape, retailers faced intense competition to attract and retain customers. Every company aimed to provide a better shopping experience to address new market entries by delivery companies, brandless retailers, and technology companies. Retailers were struggling to adapt their business to changing industry trends and seize any potential advantage.

To compete with an increasing number of data-driven competitors, Nata Supermarket created its internal data set to collect information on customer shopping habits and customer demographics such as age, educational background, and frequency of complaints. The types of shopping statistics that were recorded included dollars spent on specific product categories, use of promotions and coupons, and sales channels (e.g., online versus in-store).

[1] Walmart Staff, "5 Ways Walmart Uses Big Data to Help Customers," Walmart, August 7, 2017, https://corporate.walmart.com/newsroom/innovation/20170807/5-ways-walmart-uses-big-data-to-help-customers.

With the emergence of visualization tools and data analytics, Vina was wondering what useful insights could be drawn from its internal data set. Could this information be useful to resolve various issues such as targeting promotions and forecasting demand?

## NATA SUPERMARKETS

Nata Supermarkets was founded in 1972 and operated 37 stores across Canada. The company stocked a variety of product categories including wine, meat, fish, fruit, confectionery, and gold. The retailer's origins were from humble beginnings as a family store in Brendan, Manitoba. The founders grew the business by constant focus on the customer. Nata Supermarkets was a pioneer in using data to inform its product stocking levels. A ledger was kept with detailed information on all of the store's transactions, locations of the most popular items, discussions with customers about those items, and removal of products that were slow to move from shelves. This model helped Nata Supermarkets increase its revenues with an efficient cost structure, which allowed the company to open stores across Canada at a rapid pace.

## DATA BEHIND GROCERY PURCHASING

As computing power became increasingly affordable, the use of statistical models and data collection was becoming ubiquitous across most industries. Eager to take advantage of the new technology, retailers started implementing their own data collection systems. The data generated by customer shopping habits provided a variety of insights related to customer segmentation, promotion targeting, product placement, and traffic patterns. Retailers could take these insights one step further to predict customer behaviours. The data could inform decisions on which markets to target and what products to stock, among other matters. Collectively, this ability improved the shopping experience for customers and allowed retailers to exploit competitive advantages and opportunities to boost revenues.

The data consisted of biographical details about the customers (e.g., date of birth, marital status, number of children, education level, income) and shopping information (e.g., number of products purchased, promotions accepted). With the use of machine learning and predictive algorithms, Vina was interested in what insights could be provided to retailers, as well as what suggestions could be made to improve the company's promotion performance. What visualizations could be drawn from the data? Could customers be segmented into groups? What insights could be extracted from the data to make relevant recommendations? The data, which was collected over a period of three years (2012 to 2014), provided Data Supermarkets with various specific and pertinent details (see Exhibit 1).

## CONCLUSION

Based on the success that competitors were having in using data to generate customer insights, Vina realized that there was merit in the methodology. Clearly, the company needed to keep up with the trends in using analytics for business. Armed with three years of data and a vast number of statistical models, Vina started working on learning about the various customers groups at Nata Supermarkets. She was eager to determine more information about her customers' spending habits, product preferences, promotional responses, and other factors for the future.

The Ivey Business School gratefully acknowledges the generous support of David G. Burgoyne Faculty Fellow in the development of this case.

The author would also like to the thank Leslie Wu and Zain Huda for their contributions to the case.

**EXHIBIT 1: DATA CATEGORIES AND DESCRIPTIONS**

| Category | Description |
|---|---|
| ID | Customer unique ID (or identification number) |
| Year_Birth | Customer birth year |
| Education | Customer education level |
| Marital_Status | Customer marital status |
| Income | Customer income level |
| Kidhome | Number of kids in the household |
| Teenhome | Number of teenagers in the household |
| Dt_Customer | Date of enrolment with the supermarket |
| Recency | Number of days since the last purchase |
| MntWines | Amount spent on wine in last two years |
| MntFruits | Amount spent on fruits in the last two years |
| MntMeatProducts | Amount spent on meat in the last two years |
| MntFishProducts | Amount spent on fish in the last two years |
| MntSweetProducts | Amount spent on sweets in the last two years |
| MntGoldProds | Amount spent on gold in the last two years |
| NumDealsPurchases | Number of purchases made on discount |
| NumWebPurchases | Number of purchases made through the website |
| NumCatalogPurchases | Number of purchases made through the catalogue |
| NumStorePurchases | Number of purchases made through the store |
| NumWebVisitsMonth | Number of visits to the website in the last month |
| AcceptedCmp1 | Enter 1 if accepted 1st campaign; otherwise, 0 |
| AcceptedCmp2 | Enter 1 if accepted 2nd campaign: otherwise, 0 |
| AcceptedCmp3 | Enter 1 if accepted 3rd campaign: otherwise, 0 |
| AcceptedCmp4 | Enter 1 if accepted 4th campaign: otherwise, 0 |
| AcceptedCmp5 | Enter 1 if accepted 5th campaign: otherwise, 0 |
| Complain | Enter 1 if the customer complained in the last two years; otherwise, 0 |

Note: The last three rows were purposely omitted from this table.
Source: Prepared by the case author.