From reducing shopping queues to delivery times: How the Shoprite Group innovates using AI

In the age of big data, the Shoprite Group is at the forefront of innovating with artificial intelligence (AI). As one of the world's leanest and most advanced retailers here are three leading innovations which have had a marked impact on the Group's operations as it continues to create the best possible customer experience:

Ensuring Sixty60 arrives fast and fresh

To further improve Checkers Sixty60's delivery times, the Group developed a machine learning algorithm to dynamically define optimal delivery regions. The solution overlays a map with the spatial-temporal view of orders while using order data to determine the optimal delivery area for each store.

The algorithm also considers packaging and delivery time to determine the areas which can be best served by a driver within the allocated time (60 minutes). In addition, it uses advanced route optimisation algorithms based on isochrones and open route services to overlay geospatial and traffic data with the available delivery time to determine the optimal delivery route.

Only the freshest on the shelf

In a South African supermarket first, the Group successfully deployed a powerful end-to-end supply chain software solution to ensure highly accurate orders. This includes fresh produce such as poultry, cheese, eggs, milk and more, resulting in fully stocked shelves and less food waste.

Using machine learning and artificial intelligence, the system considers a diverse number of external factors when ordering ultra-fresh products. For example, the team fed two years of sales and stock data, together with several extrinsic factors, into the system to better predict how much chicken customers will buy throughout the year and inform suppliers accordingly. The implementation was an immediate success, with substantially increased year-on-year sales growth and significantly reduced wastage.

Improving store layouts and reducing queues

To enhance the in-store customer experience, the Group is applying machine learning to current store floor plans and tweaking the location of shelves or tills, for example.

Teams are using machine learning to create 3D store tours, which in turn assists with improving store discipline, visual merchandising and developing future store design templates – all with the aim of enhancing the customer journey through a store.

In addition, the Group also developed a computer vision system called QMON to anonymously monitor queue length and waiting times. It uses state-of-the-art privacy-first models to establish the number of customers queuing in order to reduce the wait time.

Looking ahead

With the Shoprite Group's strong focus on iterative and re-usable innovation, the same technologies - once proven - are quickly expanded and operationalised.

"Our approach to development is pragmatic. If somebody has already invented the wheel and we can use it, we'll do that. If not, Shoprite Technology has the expertise to create the required solution ourselves in order to best serve the business, and most importantly, our customers," explains Chris Steyn, Head of Data and Analytics at the Group.

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