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# METAVERSE: THE FUTURE OF CPG DATA ANALYTICS

Abstract

Organizations are increasingly experimenting with ever evolving metaverse to derive new business opportunities and develop new business models.

Consumer Packaged Goods (CPG) organizations can benefit from this evolution of the metaverse due to the unique capabilities that it presents to understand consumer behavior, preferences, and interactions. The data analytics in the metaverse can provide CPG organizations with new insights, hitherto unseen, to improve the consumer experiences, build stronger brands, create personalized products, and elevate customer support.

This article, in a series of many, illustrates three data analytics uses cases in the metaverse for CPG organizations and how these use cases can help drive value.
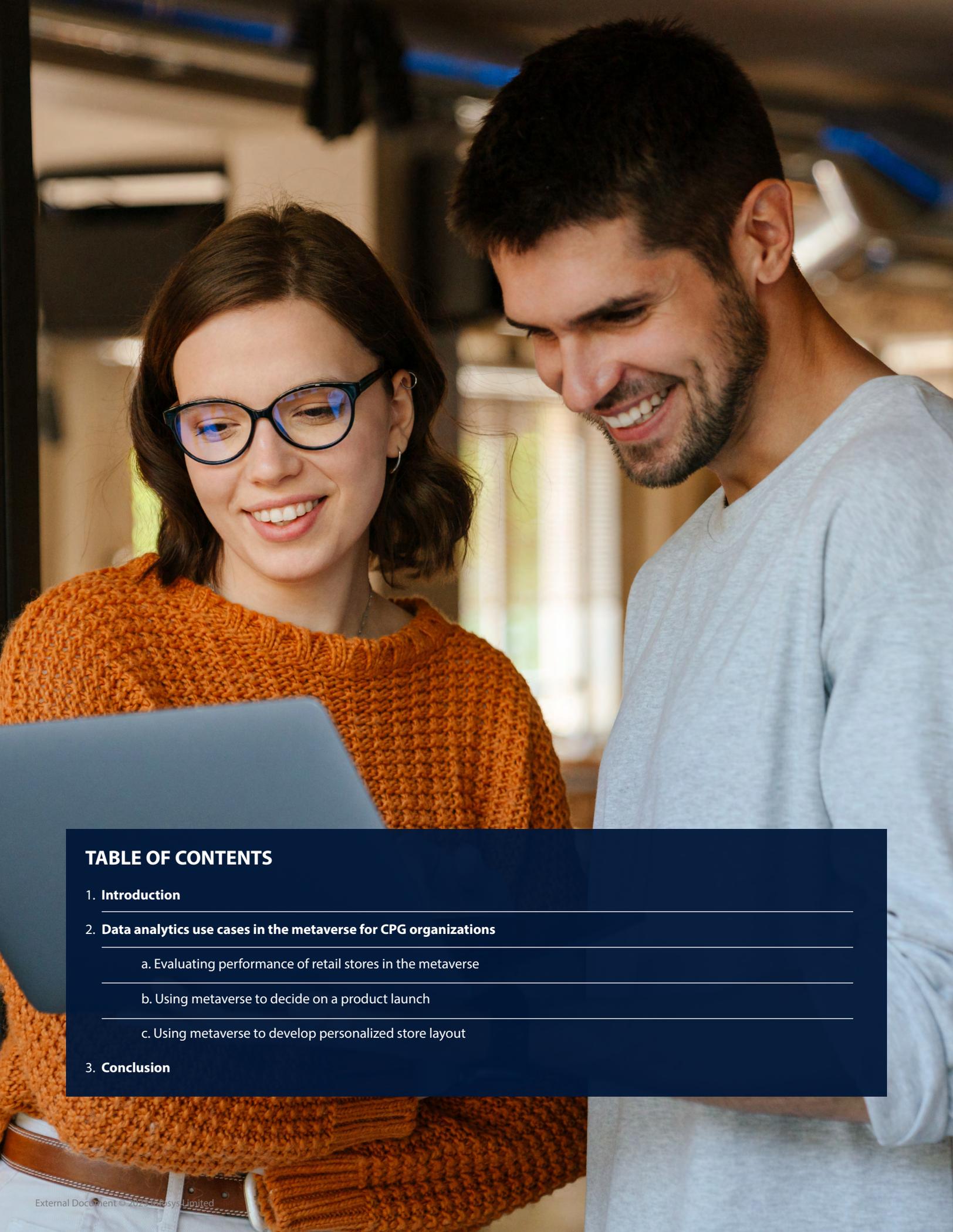
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Introduction

Metaverse is a new digital universe, beyond the real one, which is enabled by a confluence of technologies. This complex maze of technologies and ever evolving nature of the metaverse typically require organizations to start small and scale up later. Most of the organizations that embark on their metaverse journeys start with piloting with those use cases that offer immersive experiences to their customers and employees. However, there is a sea of other use cases of the metaverse which, when implemented with proper due diligence, has potential to deliver unparalleled value to the organizations. One such category is of data analytics use cases in the metaverse.

In this whitepaper, we have identified three data analytics use cases in the metaverse for CPG organizations. T. The unique capabilities provided by the metaverse to capture consumers' behaviors, responses and preferences can help CPG organizations remain relevant to their consumers.

CPG organizations need to collaborate with key retailers and maintain healthy relationships. They also need to manage global supply chains to reduce the sourcing costs and minimize third party risks. CPG organizations are also responsible for running and managing trade / consumer promotions regularly..

For each of the three use cases that we have identified in this whitepaper, we have illustrated sample data points that should be captured in the metaverse, how they should be captured and how they should be analyzed to generate insights that are meaningful to the CPG organizations and worthy of implementation. These data analytics use cases in the metaverse can be used by the CPG organizations to evaluate products and analyze consumer preferences without building costly physical prototypes.

Data analytics use cases in the metaverse for CPG organizations

Evaluating the performance of the retail stores

CPG organizations are soon going to own stores in the metaverse, or they can collaborate with key retailers to build their stores in the metaverse. These metaverse stores can act as powerful tools for CPG organizations to better understand and engage with their consumers.

The success of any store, be it in the metaverse or the real world depends on certain factors. Accurate identification and measurement of these factors (data points) is necessary to understand the true performance of these stores.

Key metrics

Metaverse stores provide another avenue of sales and increase in revenue. They also help in generating leads that may convert into actual sales in the real world. The success of the metaverse stores can be measured on **sales metrics** (total revenue, average transaction value, conversion rate, customer lifetime value, etc.) and **lead**

generation metrics (audience growth, dwell time in the metaverse, views, engagement, etc.). The third set of metrics that play an equally important role is **technical metrics** (server uptime, customer support response time, etc.).

Tracking the right set of KPIs can ensure that CPG organizations are making optimum utilization of the metaverse for customer engagement and obtaining satisfactory RoI on the capital investments made for setting-up the metaverse environment.

Data collection

The Head Mounted Devices (HMDs) worn by the metaverse users are an important source for data collection. **Virtual Reality (VR) headsets** can help capture users' location within the store, the products they interact with, and their navigation patterns. **Wearable devices,** like smartwatches or fitness trackers, can be used to capture users' data such as heart rate, activity level, and location within the store. **Motion sensors** can capture users' movement within the metaverse stores. This includes the duration users spend in a particular area, which products they interact with, and how they navigate through the store. **Eye-tracking devices** can capture where users are looking within the store.

Advanced analytics and AI can be used to influence customers' buying decisions in the metaverse. AI-powered recommendation systems can use the data captured through HMDs and sensors to suggest complementary products, **directly impacting sales metrics.** The customer avatar in the metaverse can connect with AI-powered chatbots or avatars from CPG organizations to provide feedback that can be analyzed using natural language processing techniques and can help in improving **lead generation metrics.**

Deciding on a product launch

Some of the known CPG organizations across the globe have built digital twins of their plants using the machinery sensor data and applying predictive analytics models on this data to reduce waste, improve the life of machines and optimize manufacturing operations. CPG organizations can now go beyond this and use the metaverse as a **test bed** for launching new CPG products in the real world without incurring exorbitant costs. This can also make the process of product launch leaner.

The immersive virtual environment provided by the metaverse can be used to decide the packaging of CPG products. Consumer preferences about the size, color, labeling, taste, features, etc., can be captured using head-mounted virtual reality, augmented reality, and haptic devices.

The data captured in the metaverse can be analyzed with the help of some of the following machine learning models, and a set of prototypes can be identified to be built in the metaverse.

K-Means Clustering	This algorithm can be used to group users based on their behavior within a metaverse environment. Businesses can use this information to identify clusters of users with similar preferences and behavior, which can inform product development and marketing strategies.
Decision Trees	This algorithm can be used to analyze user behavior and make predictions about which products are most likely to be successful. For example, a decision tree could analyze user interactions with virtual prototypes of various products and predict which product features and attributes are most likely to be successful.
Neural Networks	Neural networks can be used to analyze complex data sets and identify patterns in user behavior. They can prove beneficial in predicting user engagement with virtual products and recommending personalized content based on their behavior and preferences.
Association Rules	This algorithm can be used to analyze user behavior and identify correlations between various products or product attributes. For example, it could identify that users who interact with virtual food products are also likely to interact with virtual kitchen strategies.

Infosys has developed digital twin of Vaccine Production Line enabling quality engineers to assess critical vaccine culture data to make predictions and decisions. The iPad-based Virtual Reality app provides detailed and interactive 3D models to monitor the vaccine progress at various stages. It also provides real-time charts/visuals and educational gamification features for training plant personnel. Infosys can help CPG organizations develop similar digital twins to decide the product launches and monitor plant operations.

Developing personalized store layouts for customers

The store layout is one of the most important factors influencing CPG customers' shopping experience. If the layout is not appealing to the customers, they may abandon the store and move to some other retail stores. Though CPG organizations take a lot of care in ensuring that customers find their products easily, move in the store freely, and make the payment quickly, it is not always possible to make the store layout appealing to all CPG customers due to **prohibitive real estate costs** and other operational issues.

This is where metaverse can help CPG organizations improve customers' shopping experience without incurring heavy capital expenditure. Customers' preferences can be captured in the metaverse through various devices, such as head-mounted virtual reality, augmented reality, and haptic devices; and analyzed to offer personalized store layouts to keep them engaged.

Customers can be shown their personalized store layouts while keeping the same SKUs in the store. The customers can also be provided with options to build their personal store layout from a 3D pool of aisles, shelves, carts, checkout areas, etc. The store layout, with maximum preferences in the metaverse, can also be used to design retail stores in the real world.

Deciding optimum product placement

CPG and retail organizations have been using product placement techniques in the real world to improve sales, increase brand awareness and enhance customer experience. However limited space in retail stores, competition, and costs associated with prime locations in retail stores limit CPG organizations' ability to find the optimum product placement strategies. CPG organizations can leverage the flexibility offered by the metaverse to decide the product placement strategies that they can use in the real world. They can use **heatmaps** to track where customers are spending their time within the metaverse. CPG organizations can also roll out **surveys** to gather feedback from the metaverse users.

Some of the existing metaverse platforms provide **in-built analytics tools** to track metaverse users' behavior and interaction with products. By analyzing this large amount of data set **using machine learning** and other analytics techniques, CPG organizations can gain insights into which product placements are most effective and make data-driven decisions that can help in overcoming challenges associated with space, cost, and competition in the real world.

Infosys has developed a virtual store offering in the metaverse which CPG organizations can use to provide superior shopping experiences to their customers. This virtual store in the metaverse allows customers to explore the products, compare them and place them in the checkout carts just by touching, swiveling, and pointing. Customers can teleport themselves to any isles in the virtual store at a click of a button. The virtual store is integrated with an ERP system that helps in managing key business processes of the CPG organizations. It also helps in capturing consumer interactions and preferences; and generates real-time reports.

Conclusion

In summary, metaverse use cases for CPG organizations go beyond offering immersive experiences to their consumers. Metaverse can be used by these organizations to gather data about consumer behavior, experiences, and preferences, which were hitherto unknown. The captured data can be put through a variety of data analytics models to generate insights. The three data analytics use cases elaborated in this whitepaper can help CPG organizations in assessing the success of their stores, launching products that have a high likelihood of success, optimizing the shopping time of customers, and turning over more stocks through personalized store layouts. As the metaverse continues to evolve and expand, CPG organizations must embrace the opportunities it presents to stay ahead of the competition. By leveraging the power of the metaverse, businesses can reduce costs, improve efficiency, & solve problems that were considered unfathomable until now. They can unlock new business opportunities and evolve new business models for them.
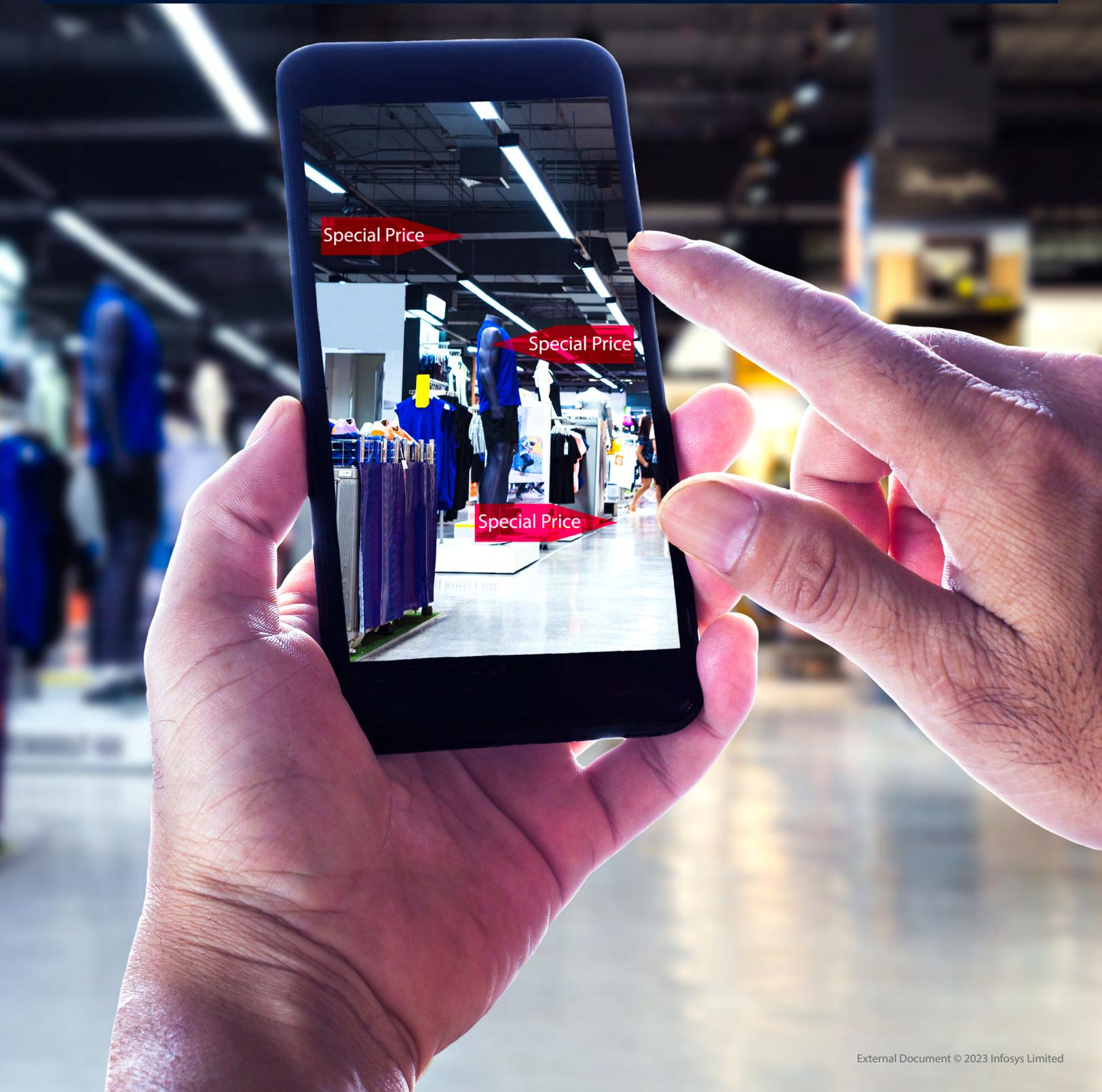
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