The competitive dynamics in which retail operates is changing. Think of it from your personal experience, whenever and wherever you buy something, you have a few basic expectations: an easy purchase process, personal interaction, relevancy and availability. The implications of consumer behavior for retailers range from the need to ensure relevant customer service and quick delivery to serving personalized content and managing data from disparate systems.

Of course, there are various platforms and data architectures for managing customer and product data. The market offers a range of ecommerce platforms, loyalty programs, operational intelligence and marketing solutions. And while these do help retailers keep up with a data-intensive market, there remains the need for a unified system that integrates siloed data into a uniform view, making information findable and shareable.

A knowledge graph can serve as such a unifying platform – a sound and reliable technological foundation for retail operations.

The Strategic Why of Knowledge Graphs for Retail

It's best to think of knowledge graphs as a rich network of meaningfully connected data about products, people, locations, personal preferences, suppliers, etc. As such, they incorporate information and develop inferences from otherwise disconnected systems to enable efficient insights and operations based on contextualized data.

The benefit of a knowledge graph for retail lies in its capability to interconnect data from disparate systems such as ecommerce websites, inventory, product and customer insights, delivery information, location and preferences data. With a knowledge graph, these are organized and structured in a single data management system to increase efficiency and accuracy in serving people the right products at the right time.

Thus, all-important retail data about product descriptions, customer relationships, logistics, transactions, customer service, user-retailer interactions, etc. is integrated and analyzed in a 360-degree view. Whether using recent purchases data in a recommendation system or geo-spatial data to suggest the best and the fastest delivery for a given product, this connected data enables deeper understanding of the relationships between the products and the consumer's intent.

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That said, the strategic reason for using the capabilities of knowledge graphs for retail boils down to efficient semantic data integration and management for better customer experiences and increased revenue flows.

The benefit of a knowledge graph for retail lies in its capability to interconnect data from disparate systems such as ecommerce websites, inventory, product and customer insights, delivery information, location and preferences data. Share on X.

How Can Retail Benefit from a Knowledge Graph: The Case of a Teddy Bear

The systems behind retail operations, and more importantly their ability to interact with each other and exchange data, can make or break the customer experience. Depending on how data from retail operations is handled, there might be friction and lost revenues.

Case in point, consider a scenario about a Teddy Bear.

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Meet Sarah. Sarah just saw a Teddy Bear at her friend's house, which would make a great present for her niece. Sarah takes a picture of the toy with her cell phone, uses the image to search Google for similar products and then begins to sift through the results and offers. Unfortunately, she's forgotten that her niece's birthday is in two days, so she needs the present quickly, at the best price and with the least hassle.

The search results return several brands that sell this particular Teddy Bear. For some of them Sarah downloads a phone app for easier shopping while for others she continues shopping online. However, most companies don't give her the expected date of delivery or the stock availability in the nearest store.

Finally, Sarah discovers a website where the products have estimated delivery dates, only to find out that those are later than her deadline. Frustrated, she contacts customer service through a chatbot.

To her annoyance, the chatbot doesn't recognize what she is looking for and she has to paste the link to the product to ask about availability in stores. Fortunately, the chatbot gives several options for nearby stores that have a couple of the Teddy Bear left. Ignoring the chatbot's irrelevant recommendations for stores outside of her state, Sarah heads to the nearest shop to get the Teddy Bear. When she arrives, she finds out that the last one has just been sold and – contrary to what the chatbot told her – there are no other items left.

The End of Fragmented User Experience in Retail: Semantic Knowledge Graphs

From a retailer's perspective, behind such frustrating experiences lies siloed data. Sarah's path to the Teddy Bear purchase has been challenging, and she is very likely to give up when numerous systems and their siloed data stand in the way. In our scenario, we have data being considered from inventory, e-commerce websites, shipping info, logistics and geo-spatial insights. All this data is not integrated, so it fails to provide the smooth experience customers need and expect.

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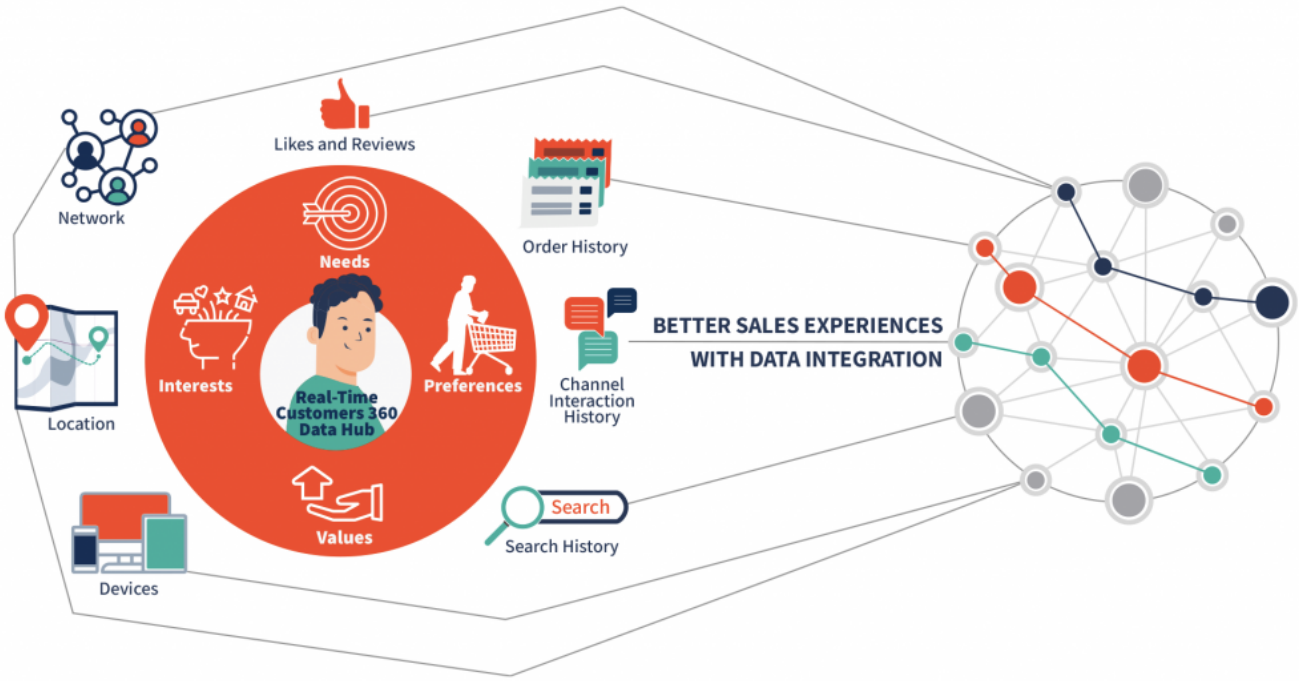

A knowledge graph based retail ecommerce system can turn these siloes into an interconnected environment of communication platforms and transaction flows. Were it powered by a knowledge graph, the system Sarah interacted with (be it a chatbot or a website) would be providing real-time data with all the information she needed.

The website would show real-time availability, in-store and online. The chatbot would be able to constantly update the inventory data and the estimated delivery dates. It may even offer Sarah a coupon code for specific products she has been browsing as a first-time customer or to honor her as a loyal customer.

It Takes Connected Data to Connect Products to People Efficiently

The key benefit of having a semantic knowledge graph is that it offers better sales experiences with its ability to integrate data and use it for business value across all systems of a retailer.

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In a data-driven market, attracting and retaining customers is intricately related to providing all the data they would need in their journey towards a purchase. Being able to implement the semantic descriptions of products and their relationships and further interlink them opens up a whole new way of engaging customers. It further makes their shopping experiences better, easier and, most importantly, connected.

Adopting knowledge graphs also helps empower communication between departments and enable smooth real-time data exchange between the retailer's business-critical systems. And this is exactly where the benefit of connected data for a retail business lies – in having the right data to enable personalized, smooth experience across physical and online customer touch points.

Want to explore how your retail business can benefit from knowledge graphs?

Book a Discovery Call

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