



it's about time



How kdb+ can power the smartphone shopping revolution

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Over the last half decade, there has been an undeniable surge in the amount of data generated by mobile devices and those connected to the Internet, leading to the birth of what is now called the Internet of Things, or IoT. From social media posts to richer, more media-heavy websites, there has been no shortage of data generated by both consumers and creators of content. In this vast ocean of data, however, there has been an increasing focus on the technology that could handle such volumes with incredible speed and efficiency.



Consequently, Kx has recently pivoted its attention to addressing the technological needs of businesses drowning in consumer data that could be used to unlock significant business potential. Retailers, for instance, have increasingly pooled resources from data science teams to AI experts to sift through their mountains of data in order to glean the crucial pieces of insight into consumers' behavioral and purchasing patterns. Armed with this information, retailers can better price their products, manage their inventory and interact with customers when they're actively (or passively) exploring different products, and most crucially, better predict where, when and how consumers will make their next purchase.

At the core of this digital transformation in the retail industry is the gradual emergence of the smartphone as the primary means of online shopping. By one estimate, 51.2% of online purchases (95.1 million) will be made through a smartphone next year in North America. In Europe, the case is no different: 51% of online retail sales in the UK occurred on either a smartphone or a tablet between November 2015 and January 2016. Furthermore, according to another survey conducted on behalf of Paypal, that included 23,000 participants in over 29 countries, 75% of millennials between 18 and 34 made an online purchase in 2015, roughly a fifth of which did so through a smartphone.

As these figures continue to increase, and as more and more consumers of all demographics increasingly conduct their shopping transactions on mobile platforms, retailers in turn must deal with some serious questions, like how do we make it as easy as possible for consumers to complete a purchase on their smartphones, as opposed to them sifting through a website? Retailers also want to know how to effectively target consumers with what they seek, when they want it most, as well as what is the best way to manage their inventory.

Most crucially, the Holy Grail for online businesses is how to best predict, and consequently recommend, certain items to each unique consumer based on their search history and complete online profile. The leader in this area is Amazon, with their recommendation algorithm driving 35% of the company's revenue. With tens of millions of new and recurring online shoppers spending more time on their smartphones hunting for deals, retailers have felt the urgent need to address these questions from a technological point of view.

Though technology undoubtedly plays a pivotal role, the basic psychology behind the customer journey, from the beginning to the end, is no less crucial. According to a Google report, over 82% of those who own a smartphone explore various options online while physically in a store contemplating what to buy, which has led to a 29% increase in mobile conversion rates between April 2014 and 2015. Furthermore, since 87% of smartphone owners have their phone by their side all day long and 90% of them are undecided about the brand they seek while shopping online, marketers can use this to remarkable effect.



Red Roof Inn, for instance, focused on flight delays and cancellations at major US airports. They cleverly and conveniently offered accommodation suggestions during those moments when most frustrated passengers were looking for a place to spend the night. As a result, Red Roof saw a 60% increase in non-branded bookings. Unsurprisingly, the same Google report found that 51% of those active on their smartphones discovered new brands and products simply because they appeared during the course of their mobile search.

The key principles that underpin any successful mobile campaign, therefore, are: 1) being there, 2) being useful, and 3) being quick. As demonstrated by the case of Red Roof, being there is vital, but being useful can be extremely effective in attracting new and recurring customers; 51% of smartphone users end up purchasing from an unintended company simply because their information was useful, and 73% of consumers consider consistently useful information the most crucial factor in selecting a brand. What's also interesting to note is that 69% of consumers are also much more inclined to buy from a company if its app or website helped them easily find information to their questions.

Moreover, McKinsey, the global consulting firm, conducted a survey about the potential of Big Data to drive revenue growth if harnessed intelligently and their discoveries are enlightening: the securities and investment services industries in the US possesses at least 3,866 TB of data, while the banking sector around 1,931 TB. In contrast, Walmart and the Library of Congress hold 500 TB and 235 TB respectively. Kx has been a technology leader in both financial sectors cited here for over a decade, honing its products and expertise on the largest datasets in the world.

Why retailers should pay heed to this data is because those that harness it quickly and accurately to drive key business decisions are 5% more productive and 6% more profitable. For retailers, the important observation is that 56% of all customer interactions occur across multiple events and through multi-channel journeys. By some estimates, the total amount spent on global mobile ads will exceed \$200 billion in 2019, from \$100 billion this year, clearly emphasizing the growing importance of the mobile space for companies, large or small, local or international. Without a doubt, the personalization of the user shopping experience, in real time, is the key to financial success, especially in the retail space. In order to do that effectively, significant technology investments are necessary to handle mammoth volumes of data. The leader in this space is unquestionably Kx, whose kdb+ time-series database is the fastest on the planet, as demonstrated recently in benchmark results where Kx set a record in 16 out of 19 real world financial tests on a 48 terabyte dataset, audited by the Securities Technology Analysis Center (STAC).

Powerful business tools built on top of kdb+, like Stream for Kx, incorporate a plethora of flexible visualization options and powerful programming functionality for retailers to accurately, and comprehensively, monitor all facets of their operations, from online browsing and shopping to social media traffic, as well as inventory levels in real-time, thereby significantly bolstering their capabilities to address their opportunities and challenges.

With the current retail market in the USA alone surpassing the \$2.6 trillion mark, the retail tech pie is very large, and whoever has the strongest technology behind them, will take the largest piece. That's why retailers are turning to Kx. They want to take better advantage of their data, and use Kx's flexible dashboards to allow everyone in their organization, from business analysts to data scientists, to see consumer behavior in real time and adjust their offerings accordingly.

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