



Wi-Fi's Critical Role in Retail

Case Study: Ahold Delhaize, Europe

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Ahold Delhaize Depends on Wi-Fi to Deliver a Rich In-Store Experience

Wi-Fi helps bricks and mortar retail to remain competitive

To compete effectively with online marketplaces, bricks and mortar retailers need to provide a compelling in-store experience. To that end, they are making growing use of digital technologies, underpinned by Wi-Fi, to build a deeper relationship with customers. With reliable wireless connectivity, retailers can, for example, make timely and personalised offers to in-store customers, while tailoring digital signage and advertising to appeal to individual shoppers.

To ensure retailers have enough Wi-Fi capacity to support the growing number of real-time applications, the technology needs access to sufficient spectrum, particularly the 6 GHz band (5925-7125 MHz).

Ahold Delhaize, which operates 9,400 grocery stores across nine countries, is keen that the entire 6 GHz band is made available for licence-exempt technologies across its trans-Atlantic footprint. Headquartered in the Netherlands, the group makes extensive use of Wi-Fi networks in its stores to help deliver a rich and personalised shopping experience.

For example, when a customer walks into a Delhaize store in Belgium, their phone automatically connects to the free Wi-Fi, if the customer has installed the loyalty app. Customers can also use the in-store Wi-Fi networks to make conventional cellular calls (thanks to “voice over Wi-Fi” technology). As well as delivering seamless connectivity for its customers, Wi-Fi enables Delhaize to engage its customers with real-time shopping reminders or purchasing promotions.

Delhaize can also enable its suppliers to show video commercials on digital signage displays inside the stores in real-time. At the same time, the Wi-Fi networks are used by both store staff and a myriad of connected devices, including self-scanners, checkout systems, electronic shelf labels or monitoring systems.



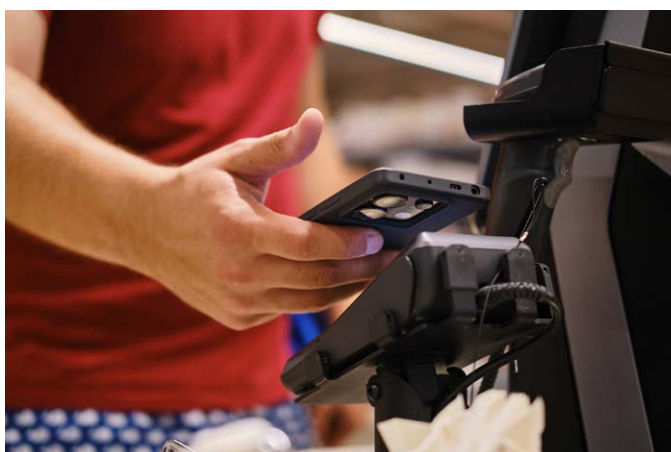
Low cost, high coverage

As margins in the fiercely competitive grocery market are low, Ahold Delhaize needs its ICT systems to be as cost-effective as possible. Wi-Fi fits that bill. It provides coverage throughout a store, whereas cellular signals from outdoor base stations struggle to penetrate metal fixtures and fittings inside the store. It is unlikely that a shopper's specific mobile network provider will have coverage throughout the store.

While Ahold Delhaize did consider installing cellular repeaters, the cost would have been prohibitive, particularly as competing mobile operators don't generally want to share infrastructure, explains Rolf Vanden Eynde, Head of Tech - Stores and Technology, IT Core Retail, Belgium Central & Southeastern Europe at Ahold Delhaize. Using Wi-Fi also gives Ahold Delhaize more control as it can easily access the data generated by the connectivity, which wouldn't be the case with third party cellular connectivity, he adds. The retailer relies on data to better understand its customers and how they approach in-store shopping: data is key.

Each of Delhaize's shops in Belgium, which have about 2,500 square metres of floor space, has approximately 25 Wi-Fi access points to ensure coverage throughout the store. As scores of customers, together with hundreds of in-store devices, may be connected simultaneously, each access point serves several dozen connections at any one time. Moreover, the Wi-Fi networks need to share the spectrum available with other licence-exempt technologies, such as Bluetooth, which is also increasingly used by retailers for proximity marketing, personalised customer experiences or in-store analytics.

“The number of connections we have in the store is immense because almost everything is connected,” explains Rolf Vanden Eynde. “In the future, we might have congestion issues, so we will need the extra bandwidth and the extra speed that the 6 GHz band can bring us.”



AI helps retail go real-time

The pressure on retailers' Wi-Fi networks will increase further as they deploy digital applications that respond in real-time to customers' requests and actions.

"One of the projects we are looking into at the moment is computer vision and AI," says Rolf Vanden Eynde. "In our retail environments, a task that a store associate is doing where they need to use their eyes might be alleviated by computer vision and AI algorithms, freeing up time for our store associates to better serve our customers. Such use case examples might be spill-detection, loss-prevention at the self-checkout or empty shelves detection. For example, there are electronic shelf labels with internal cameras that are capable of detecting when the opposite shelf needs restocking."

As the Ahold Delhaize group refreshes its Wi-Fi networks in the stores across its footprint, it plans to take advantage of the 6 GHz spectrum band. All 1200 MHz of the 6 GHz band is available for use by Wi-Fi in the US. But, as things stand, Ahold Delhaize's European operations will only be able to employ the 480 MHz in the lower part of the band, which is available for licence-exempt technologies. European policymakers and regulators are exploring whether Wi-Fi and cellular technologies can share the 700 MHz in the upper part of the band.

"We need Wi-Fi in 6 GHz because we are going in the direction of real-time retail: All these applications are going to come fast and they need bandwidth," adds Rolf Vanden Eynde. "Ideally, we put as much as possible on the Wi-Fi because cabling is expensive." He notes that installing cable connections incurs major overhead and labour costs, as the work generally needs to be performed at night, when stores are closed.

Whereas cellular networks are designed to bring connectivity to people and devices on the move, they aren't well-suited to providing coverage deep inside private buildings, particularly retail stores with large numbers of metal racks. "But we don't need cellular coverage inside stores because our customers can make calls over Wi-Fi," concludes Rolf Vanden Eynde. "When you walk into a store or into a building, the phone sees the public signal penetration is dropping, but it sees good private Wi-Fi, so it can seamlessly switch to it."