Wi-Fi for your customers: The toughest challenge of the decade

Retailers and other companies know their customers want wireless access. Few executives understand how much planning (and money) is required to manage it successfully.

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It sounds like a simple proposition for retailers, hotel and cruise companies, or any company that wants to provide wireless access in a network of physical locations: Install Wi-Fi for customers and employees to use with their smartphones and tablets at those locations. Shoppers, for example, are coming to expect it in stores: In a recent survey by SapientNitro and GfK Roper, 63% of respondents said free Wi-Fi would enhance their shopping experience. And even though some shoppers will use the service to compare prices online, more and more retailers are offering Wi-Fi service to customers. In the 2012 holiday season JCPenney, Target and Saks Fifth Avenue joined the ranks of other chain stores that had offered Wi-Fi in previous years, including Macy's, Sam's Club

How much would it cost to provide wireless service for your customers?

Explore costs and trade-offs with our Wi-Fi Cost Estimator. Enter the number and size of locations, and choose among service levels and the number of users to see how much capital investment would be required to offer Wi-Fi capabilities at your public locations. Our estimator breaks down costs by hardware, labor, bandwidth and other expenses per location. Go to **www.bain.com/wifi**

and Nordstrom. Wi-Fi also offers opportunities to improve employee productivity and customer satisfaction—for example, by allowing a salesperson to check the stockroom without leaving the floor, or even to complete sales transactions in the aisles.

There are more than 80 million unique Wi-Fi networks in the US. How difficult could it be to put a few into stores?

Very difficult, it turns out. In fact, Bain & Company's work with retailers and other companies finds that rolling out Wi-Fi to a network of physical locations may be the most complex and expensive project an IT department will tackle this decade. Much can go wrong. We talked with IT managers who had purchased enough bandwidth to enable streaming videos, only to find that employees' devices were too slow to run them. We've seen a range of installation problems, from installers disrupting store operations by dropping access points from 50-foot ceilings, to heavy wiring closets falling off the walls. One retailer had to convince its competitor at the other end of a mall to allow the cables for a network connection to pass through its store. Another was shocked to see its original planning estimate of a few million dollars balloon to more than $100 million over just a few months.

Most IT departments just have no experience with a project of this size and complexity. Putting Wi-Fi into a large commercial environment involves a series of complex design decisions and requires more planning than most IT departments realize. For example, companies sometimes don't know what they want their customers and employees to do with Wi-Fi, so IT departments may not choose the right vendor, equipment or service. Asking the right questions before work begins can help define the requirements.

- Do you want to provide enough bandwidth only for simple Web queries, or will the network support streaming high-definition video?

- Do you want to use Wi-Fi to locate employees or customers?

What do you want to enable?

Companies must decide what activities they want their customers and associates to be able to do, and then design their technical rollout accordingly.

Employee activities

- Check product availability

- Voice over Internet Protocol (VoIP) phone service

- In-aisle checkout

- In-aisle calls for stockroom help
  (for example, pulling the right size shoes while the sales associate stays with the customer)

- Find an employee

- More time with customers on the floor

Customer activities

- Find products

- Checking product availability

- Store map

- Product information, reviews and tutorial videos

- Price lookups and comparison

- Discounts, rewards and loyalty programs

- Purchase or order online

- Find an employee

- Entertainment (keeping kids entertained could allow shoppers to stay in the store longer)

Corporate activities

- In-store marketing

- Omni-channel experience

- Draw in nearby customers

- Inventory management

- Identify where shoppers spend time in the store

- Customer identification and personalization of interactions

- Will employee traffic move within a virtual private network (VPN) on the same network as public customer data?

It takes time and deliberation to answer these questions in a way that makes the most sense for the business.

The effort also requires a good deal of coordination among various players, more than IT departments may be used to. In addition to working with business and functional leaders and vendors, Wi-Fi projects may involve store operators and real estate managers, as well as data center and help desk personnel. Most of these projects require retrofitting buildings of various sizes, ages and configurations to perform under 21st-century expectations.

Perhaps most importantly, too many companies set out without a clear business case for Wi-Fi and are unsure how the company will measure its return on investment. Some might ask: Why not just let customers access the Web over their regular cellular networks? But one of the problems is that once you get deep inside buildings, such as a department or big-box store, cell coverage can be poor. Wi-Fi offers better reception and thus enables more functionality. But failing to make a good business case for that investment makes it even tougher to come up with a plan and technical requirements.

How do leaders navigate these projects successfully? First, they develop a clear business case for the investment and ongoing operational costs, which gives them a solid understanding of how Wi-Fi will support their business goals. Starbucks, for example, understands the value of drawing in and holding customers with the free Wi-Fi service it offers with its partner, AT&T, which also benefits by moving some data traffic off the cellular network and directly onto its network through Starbucks's Wi-Fi.

Second, executives must decide on the functions they want before planning begins. For example, they may decide to provide enough bandwidth for customers to look up information about items, but not enough to allow every bored toddler in a shopping cart to watch streaming cartoons. Indeed, they must consider a wide range of policy questions, including how to filter out unwanted searches and how to handle the risk of becoming a showroom for price comparisons. Taken together, the answers to these questions allow them to begin to draw the specifications for the technical design and develop an implementation plan.

Building the business case

In our work with clients we see that leaders begin by asking some fundamental questions.

- What are the business uses for Wi-Fi, and what benefits do we expect it to yield? Will it create higher levels of customer satisfaction and loyalty from shoppers who have a more enjoyable or productive experience? Can we raise our employees' efficiency by allowing them to check for out-of-stock items or check out customers from the aisle?

- What kinds of wireless services do we want to provide to our customers and associates, and how will doing so improve our business? For example, customers can use their smartphones to find the product they need or get information about how to use the product before they buy. If the product is out of stock in the store, they may be able to buy it online for home delivery. Smart systems might be able to recommend related products that they need for a project—for example, suggesting a fresh can of PVC cement if the shopper is buying plastic pipe. (See sidebar, "What do you want to enable?")

- Do these add up to a solid business case? Will Wi-Fi increase revenues directly (charging for wireless service) or through more sales? Will it reduce our costs by allowing associates to work more efficiently?

Only with a good understanding of how Wi-Fi will be used can a company make the right technical decisions and begin to form a plan that incorporates security, bandwidth (upstream and downstream), geolocation and other requirements.

Although not a retail chain, Royal Caribbean offers a good example of how one company planned its approach to Wi-Fi in ways that put the business case first. Several

years ago the cruise line realized that customers were beginning to expect the same fast Wi-Fi connectivity at sea that they get at home or in a hotel. The company devised a plan for recouping its capital investment through subscription plans. The technical challenges were daunting, not only because of the scale of the rollout (each ship requires hundreds of access points), but also because a ship's steel walls limit Wi-Fi's range and capabilities. Providing a high-speed experience for a few thousand concurrent users uploading pictures after their shore excursions required the use of cutting-edge technologies in satellite connectivity, network compression and maximizing bandwidth. Even so, by clearly understanding the business case for its invest-ment and the technical requirements, Royal Caribbean is rolling out a very successful wireless program.

Steps for a successful rollout

Once a company has decided on its business needs and Wi-Fi's role in generating value, planning begins. As with any project of such a massive scale, building out Wi-Fi requires solid project management skills and careful selection of vendors. Businesses and their IT departments need to weigh many options and the inherent trade-offs. For example, the amount of band-width necessary to allow a single customer to watch a streaming video might instead allow a dozen or more customers to read product reviews or access supply infor-mation. Determining these kinds of requirements must be a two-way dialogue, with the business understanding the constraints and trade-offs while the technology folks gain a clear understanding of how the business wants to use Wi-Fi now and in the future.

With the project properly defined, the next step is de-signing the technical solution within the bounds of the initial capital investment and the budget for ongoing operating expenses. This phase involves store surveys that take into account the layout of the retail space, as

well as the underlying infrastructure of electrical and communication networks and barriers, such as concrete or steel structures. Determining connections from the telecom operator to the store or through a mall can sometimes be more complex than expected.

Pilot programs help identify problems and mistakes before a rollout to the entire retail chain. Testing the technical solution in just a few locations can help identify weak points and unexpected problems, allowing IT to fine-tune the solution before a full rollout. For example, at one retail chain, installers placed access points in locations that they decided were more convenient than those indicated on the plan—a shortcut that created gaping holes in coverage that were costly to fix later.

Among the other lessons we've learned in working closely with clients on Wi-Fi projects:

- Wi-Fi projects are typically more complex than anticipated—and surprisingly more expensive.

- Consider Wi-Fi a business project supported by IT, not primarily an IT project. The technical require-ments should be driven by the business requirements.

- Wi-Fi projects tend to involve almost all parts of the organization, including business development, marketing, legal, finance, facility management and store operations.

- Pick the right outside help. Internal organizations may not have the experience or skill set to cover the full breadth and depth of topics. Mistakes in the planning phase can easily cost millions of dollars during the rollout and later remediation.

- Set aside sufficient time: Six months is ideal for a good planning phase. ◉

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