MAY 2013

MITSloan
Management Review

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Competing in the Age of Omnichannel Retailing

REPRINT NUMBER 54412

Competing in the Age of Omnichannel Retailing

As technology blurs the distinctions between physical and online retailing, retailers and their supply-chain partners will need to rethink their competitive strategies.

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THE LEADING QUESTION
How is technology changing the retail landscape?

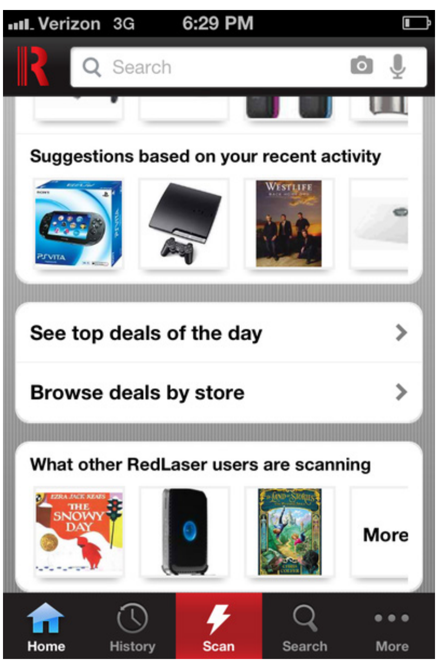
FINDINGS
- The distinctions between physical and online retailing are vanishing.
- Advanced technologies on smartphones and other devices are merging touch-and-feel information in the physical world with online content, creating an omnichannel environment.
- Online and offline retailers may need to compete in new and innovative ways.

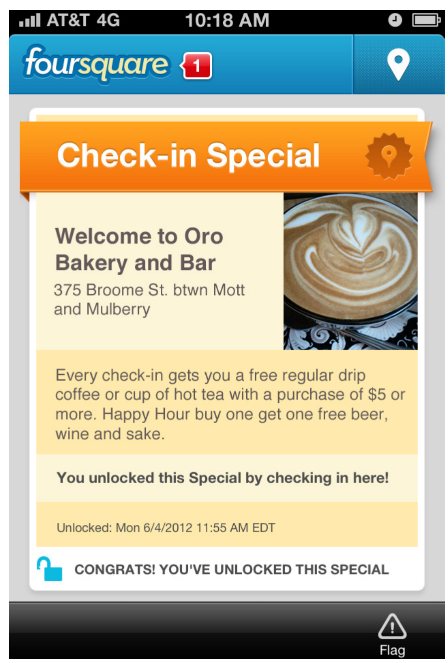
BRANDON MCDONALD, of Nashville, Tennessee, visited a local Best Buy to purchase a digital single-lens reflex camera. After browsing through the available products, he decided that he liked the Nikon D5100. To verify the price, he scanned the barcode with the RedLaser app on his smartphone. McDonald found that Amazon.com's price was lower than Best Buy's, so he purchased the camera from Amazon using his phone as he stood in the store. Although he and his wife had intended to return home with a camera that day, to save money they were willing to wait two days for the item to be sent.

Tasmia Kashem, a resident of Burbank, California, went to the Beverly Center mall in Los Angeles to shop for shoes. After browsing at Nine West, a fashion retail chain store, Kashem didn't see anything she liked. As she was leaving the store, an associate offered to show her additional collections on an iPad. Upon scanning through the online offerings and reading reviews, Kashem decided to preorder a new style that was arriving at the store the following week.

Mobile technology can help all retailers, both online and offline, expand their markets and reach new customers.

Examples such as these illustrate how recent technology advances in mobile computing and augmented reality are blurring the boundaries between traditional and Internet retailing, enabling retailers to interact with consumers





COURTESY OF REDLASER, SHOPKICK, FOURSQUARE through multiple touch points and expose them to a rich blend of offline sensory information and online content. (See "About the Research.") In the United States today, more than 50% of cell phone owners have smartphones, and more than 70% of these have used their devices for comparison shopping,[1] a habit that is becoming increasingly common worldwide.

In the past, brick-and-mortar retail stores were unique in allowing consumers to touch and feel merchandise and provide instant gratification; Internet retailers, meanwhile, tried to woo shoppers with wide product selection, low prices and content such as product reviews and ratings. As the retailing industry evolves toward a seamless "omnichannel retailing" experience, the distinctions between physical and online will vanish, turning the world into a showroom without walls. The retail industry is shifting toward a concierge model geared toward helping consumers, rather than focusing only on transactions and deliveries. For example, physical retail spaces will be augmented by virtual content accessible from smartphones and other devices such as Google Glass, Google's wearable computer. As the multichannel retailing experience breaks down old barriers such as geography and consumer ignorance, it will become critical for retailers and their supply-chain partners in other industries to rethink their competitive strategies. (See "Successful Strategies for Omnichannel Retailing.")

ABOUT THE RESEARCH

This research is part of an ongoing program examining the competition between online and offline markets and how IT-enabled tools have made it possible for companies to take advantage of both channels.[i] To shed light on the impact of geography on the competition between online and offline, we obtained a data set from a medium-sized retailing company that sells the same assortment of women's clothing through a printed catalog and a website. This data set, which included transaction and location details for each consumer, was combined with the number of local women's clothing stores available to each respective consumer. Consumers in our sample were similar to the overall U.S. population as measured by the number of local stores nearby. For example, 24% of the U.S. population has no women's clothing stores within five miles, compared to 27% of consumers in our sample; 45% of the U.S. population has access to fewer than seven stores (the median of the number of stores in our sample) within five miles.

We empirically studied how the level of competition between Internet retailers and traditional stores varied across products. We found that Internet retailers faced significant competition from brick-and-mortar retailers when selling mainstream products but were virtually immune from competition when selling niche products. Furthermore, because the Internet channel sold proportionately more niche products than the catalog channel, the competition between the Internet channel and local stores was less intense than the competition between the catalog channel and local stores.

The methods we introduced can be used to analyze cross-channel competition in other product categories, and they suggest that managers need to take into account the types of products they sell when assessing competitive strategies. For example, all else being equal, demand for popular products on the Internet from a consumer with seven physical clothing stores nearby (the median number) would be 4.2% less than from a consumer with no stores nearby. Thus, the amount of local retail competition has a significant effect on consumer Internet demand for popular products. However, the impact of local market structures on consumer Internet demand for niche products is negligible.

Enabling Technologies

The growing prevalence of location-based applications on mobile devices is a critical enabler of these changes. According to the Pew Research Center, 74% of U.S. smartphone users used their phones to obtain location-based information in 2012.[2] Retailers are taking advantage of opportunities created by location-based applications. Walgreens, for example, has teamed up with Foursquare, a location-based social networking website, to offer customers electronic coupons on their phones the moment they enter a Walgreens store. Saks Fifth Avenue has also worked with Foursquare to steer consumers toward physical locations by offering goodies (such as high-end brand Nars lipstick). Macy's offers free Wi-Fi in its stores; consumers can scan QR codes on products to see online product reviews, prices and exclusive video content on fashion trends, advice and tips. In some cases, the location-based applications aren't managed by the retailers but by third parties. For instance, RedLaser, an eBay company, allows consumers to scan UPC codes to determine whether specific products are available nearby and at what price.

Mobile applications themselves are becoming increasingly advanced. For example, Loopt, of Mountain View, California, provides real-time location-based services aimed at specific users and popular locations. Retailers can use Loopt as a virtual loyalty card, allowing them to connect directly with consumers based on their location. Loopt users can find friends nearby and receive coupons and rewards for checking into specific locations. Another app called Doot enables users to leave public or private messages for friends or family members at restaurants or stores; the messages are activated when the designated people reach the sites.

Augmented reality technologies involving smartphones and devices are merging touch-and-feel information in the physical world with online content in the digital world. Google Glass, for instance,

SUCCESSFUL STRATEGIES FOR OMNICHANNEL RETAILING

To succeed in an omnichannel environment, retailers should adopt new strategies in areas such as pricing, designing the shopping experience and building relationships with customers.

	SHORT-TERM STRATEGIES	LONG-TERM STRATEGIES
All retailers	• Create switching costs via loyalty programs and service contracts. • Use big data and analytics to better understand customer needs and values.	• Create exclusive products and unique features. • Create product bundles and product-service bundles. • Use analytics to guide product design, product line choices, channel decisions and new product introductions.
Dual-channel retailers		• Integrate channels. • Manage CRM and ROI metrics using data from both channels.
Pure brick-and-mortar retailers	• Provide store inventory information online to lower uncertainty of finding products in stores and to enable "buy online and pick up in stores." • Focus on providing information, services and instant gratification. • Charge a price premium for products that benefit greatly from having a nearby physical location due to product-related services.	• Move toward becoming dual-channel retailers.
Pure online retailers	• Provide everyday low prices and neatly curated content. • Convert "experience goods" to "search goods." • Enable consumers to use physical channel as showroom. • Offer local pickup points.	• Focus on niche products, especially ones that are not available locally. • Focus on cost and efficiency for popular, nonexclusive products.

exposes consumers to a blend of offline and online information and lets them purchase products from either traditional or online channels. EBay's Fashion app and Amazon's Flow app offer additional examples: eBay's Fashion allows consumers to try on clothing virtually, while Amazon's Flow app lets shoppers point a smartphone camera at a book or DVD to see Amazon's price and customer reviews.

Opportunities and Challenges

Mobile technology is well on its way to changing consumer behavior and expectations. Indeed, it can help retailers, both online and offline, reach new consumers and expand their markets. As John Donahoe, CEO of eBay, has observed: "Mobile is bringing the Internet to you seven days a week, 24 hours a day, on your time, at your convenience, where you want to be. We're finding out how people shop now: They're standing in a line at Starbucks, let's say, and they start browsing on eBay. They see something they want and they buy it right there."[3]

Similarly, apps from retailers such as Wal-Mart, Target and Macy's allow consumers to search for products and prices available locally. By giving consumers more accurate information about product availability in local stores, retailers can draw in people who might otherwise have only looked for products online. The enhanced search capability is especially helpful with niche products, which are not always available in local outlets.[4]

Apple's Siri app for the iPhone, for example, can make recommendations (based on location and other factors) that consumers may not have even heard of, directing out-of-town visitors to local specialty stores or restaurants. Crowd opinion websites such as Yelp can help spread consumer reviews broadly. While customer reviews on Yelp and other sites can have major impacts on independent stores and restaurants — both positive and negative — their impact on better-known chains tends to be less significant.[5]

Meanwhile, the availability of product price and availability information, the ability of consumers to shop online and pick up products in local stores, and the aggregation of offline information and online content have combined to make the retailing landscape increasingly competitive. Retailers used to rely on barriers such as geography and customer ignorance to advance their positions in traditional markets. However, technology removes these barriers. Ski resorts, for example, used to be able to exaggerate the amount of snowfall and their overall conditions to attract skiers, but third-party information makes this difficult. Smartphone apps by Skireport.com and others allow skiers to report actual snow conditions in real time, which is pressuring resort operators to be honest. A recent study found that the amount of exaggeration by ski resorts has fallen sharply, particularly at places with good cellular reception, demonstrating how companies must adapt.[6]

Location-based apps open up new selling opportunities. For example, local retailers seeking to rev up sales activity can send out promotional messages to consumers within the vicinity or even to people in a competitor's store. And just as consumers are using price scan apps in local stores, retailers are learning to respond with more focused promotional offers. Some online retailers, in particular, are attempting to gain the upper hand by offering lower prices while effectively letting consumers use the local retailer as a showroom.

Smartphones enable tracking of consumers that previously was possible only via fixed connections to the Internet. Euclid Analytics, an analytics consulting firm located in Palo Alto, California, has developed a technology that records the media access control (MAC) addresses of Wi-Fi-enabled smartphones, allowing it to track a store's traffic and repeat customers. Soon retailers will provide special incentives aimed at customers as they enter stores (BestBuy already does this for users of Shopkick, a shopping rewards smartphone app) or when they leave without purchasing anything. Such offers will take into consideration consumers' previous history and will be personalized according to their specific data.

Successful Strategies for Omnichannel Retailing

Although omnichannel retailing has some features that are related to e-commerce (notably the ability to compare prices and generate targeted ads), it's not yet clear how directly the lessons of e-commerce will apply or what it will take for companies to be successful. Retailers should begin by adapting best practices from both the offline and online worlds in areas including pricing, designing the shopping experience and building relationships with customers. We think that there are several possible success strategies for the new competitive environment, depending on the product, the level of demand and the type of consumer you are trying to reach.

1 **Provide attractive pricing and curated content.** The success of Amazon versus other online retailers underlines the importance of avoiding price wars and becoming a merchandise "curator." Consumers come to Amazon for good prices, but they also expect Amazon to curate merchandise so they won't get lost in a sea of products. Although eBay has a similarly wide array of offerings, Amazon is known for its neat and systematic presentation. In addition, Amazon's well-curated, consumer-generated content and reviews makes it easy for consumers to interact with Amazon while going through their purchase decision process.

2 **Harness the power of data and analytics.** Part of the promise of omnichannel retailing is an explosion of new data from social, mobile and local channels. This provides an unprecedented opportunity to understand not just customer transactions but also customer interactions such as visits to the store, likes on Facebook, searches on websites, and check-ins at nearby establishments. The limitation is no longer data but the ability to analyze the data. Companies including Catalina Marketing, based in St. Petersburg, Florida, have already introduced tools that use in-store purchase history to personalize mobile advertising. Increasingly, mash-

> Retailers used to rely on barriers such as geography and customer ignorance to advance their positions in traditional markets. However, technology removes those barriers.

With Google Glass, Google's wearable computer, consumers are exposed to a blend of offline and online information.

ups of data from multiple sources will give savvy retailers an ability to do predictive analytics to make location- and time-specific offers and recommendations to each of their potential and existing customers. For instance, American Apparel analyzes footage of store security cameras and intercepted mobile phone and Wi-Fi signals to understand customer visiting patterns per store and the movement behaviors of customers and employees within each store.

3 Avoid direct price comparisons. While consumers benefit from easy search, such capabilities can be damaging to sellers. Taking steps to make direct comparisons difficult can protect retailers from poaching by competitors and mitigate the effects of price competition. Consider the following options:

Distinctive features. Retailers offering a distinctive version of a product will see less price competition. For example, brand-name mattresses generally are not directly comparable across retailers. The basic strategy for manufacturers is to make minor modifications for each seller and thus have different SKUs. However, unless the changes add value, the risk is that the retailer will annoy consumers. With continually falling search costs and rich information resources, achieving differentiation can be difficult.

Exclusivity. Retailers may want to focus on product development partnerships/innovations to create exclusive products. This would mean offering products (values) that are not available at competitors (for example, The Shops at Target, Amazon Exclusive). Such exclusive offerings might include distinctive versions of products, as opposed to cost-focused store brands.

Bundles. Bundling products can make it difficult for consumers to do a direct comparison of the value of your offering with those of competitors as long as same bundle is not available elsewhere. A bundling strategy can be quite powerful in generating additional sales and profits if it is created by using historical purchase data and finding the meaningful relationships between products from past transactions.

For nonexclusive products (in other words, products that are also offered by competitors), especially popular ones, cost and efficiency are critical in determining the winner, because mobile apps enable consumers to make instant price comparisons across channels. This will intensify the level of competition. Since many consumers prefer physical stores — especially when the price difference is minimal and products are in stock — because they offer instant gratification, trust and services,[7] local stores may have advantages as search costs decline.

4 Learn to sell niche products. Online retailers will still have advantages over physical stores in selling narrowly focused "Long Tail" products that are not economical for stores to carry.[8] In between the Long Tail products and popular products are "Middle of Tail" products, which are often available at local stores but do not enjoy a huge demand. Finding these products in local stores has traditionally been unpredictable and time-consuming. But with inventory information available online, finding the products in nearby stores has become much easier. Therefore, the advantage that online retailers had

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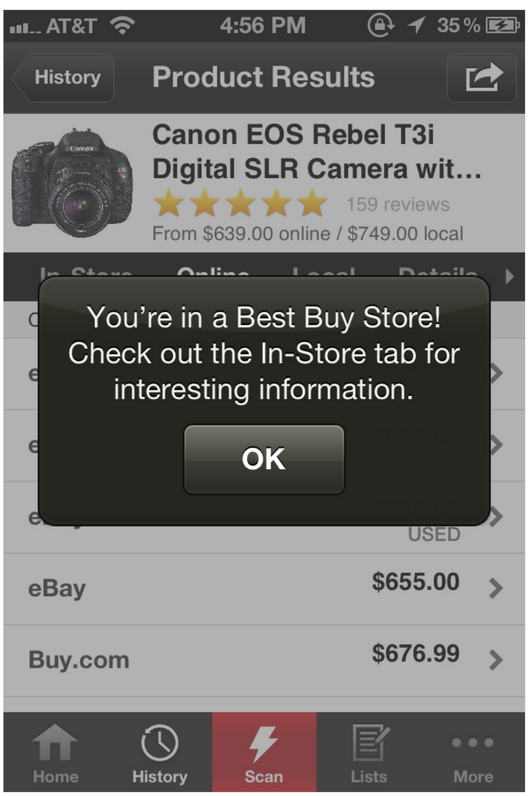
with such products is waning, and some of the demand may shift toward the physical stores, albeit at lower margins. Dual-channel retailers may have the upper hand over retailers selling exclusively online because of the trust factor and the availability of in-store pick up and after-sales service.

5 Emphasize product knowledge. The shift toward omnichannel retailing allows consumers to accumulate product knowledge (for example, the name, product size, color, shape, material content, etc.) in one channel and then purchase from another channel. Therefore, retailers need to do a better job of sharing product knowledge across their entire platform. Doing so will facilitate channel integration and attract shoppers who prefer shopping in multiple channels. Features that result in conflicting and confusing product information should be minimized to avoid consumer frustration.

At the same time, retailers should be aware that there is a downside to product knowledge when it extends across brands. Product knowledge that translates from one brand to another increases the likelihood of across-brand search and intensifies across-brand competition. Consumer loyalty tends to be higher for "experience goods" (goods whose value can only be assessed after they are purchased) than for "search goods" (goods that can be assessed before purchase based on objective criteria). As a result, the competition for search goods is apt to be much greater. To protect themselves, retailers should develop differentiating features that minimize product knowledge transferability across brands.



Advances in mobile technology are blurring the boundaries between traditional and Internet retailing.

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6 Establish switching costs. Retailers can reduce the amount of competition they face by creating switching costs. Loyalty programs similar to airline frequent-flyer programs can be important vehicles for retaining customers and maintaining margins. Amazon's Subscribe and Save program, which offers price discounts to consumers who purchase from Amazon at preset intervals, or Best Buy's partnership with the Shopkick app, which sends members targeted offers when they enter a Best Buy store, are early examples of such programs. Another way for retailers to create switching costs is to establish privileges and perks for loyal consumers, such as express or mobile checkout (as airlines have done with boarding and booking privileges). Ultimately, the differentiation should be based on user experience rather than price advantage.

7 Embrace competition. Retailers selling high-quality products or featuring low prices will do well in a world with lower search costs and more transparency. Consumers will identify these retailers quickly and will prefer to do business with them. Those that attempt to insulate themselves from competition may only succeed in the short run. But just as ski resorts are being pressured by skiers to be honest, exposure to world-class competition will force retailers to improve their products, service and prices; retailers selling inferior products or providing shoddy service will have nowhere to hide. In an omnichannel world, there is a premium on learning rapidly from consumers and catering to their needs. Similarly, there's a premium on quality, price and value.

Understanding the Impacts

As retailers adapt their selling strategies to an omnichannel environment, the changes will be felt by players both upstream and downstream. First, the manufacturers who supply products to retailers may no longer be able to produce large volumes of the same product for different retailers; many retailers will be looking for customized and exclusive merchandise, which will add complexity for manufacturers. As a result, manufacturers will need to become agile at producing smaller and more customized batches of products.

Further, as retailers pursue a strategy of seeking unique products, the boundaries between manufacturing and retailing will blur. Retailers such as Target have already collaborated with manufacturers to develop exclusive products. Such collaborations will amplify the importance of target marketing and market segmentation.

In addition, the quest for distinctive products may reduce the number and importance of superstar products. Moreover, retailers may decide to backward-integrate into manufacturing. Amazon, for example, is aggressively moving into the publishing domain; it contracts directly with authors and has released hundreds of books in both print and e-book formats.[9] This trend is likely to become more widespread in product categories ranging from music and video to electronics and clothing.

Finally, omnichannel retailing, along with smartphone usage, gives consumers more channels from which they can obtain information during the purchase decision process. Decisions can be shaped by information from the store channel, store websites, mobile apps or social media. Marketing firms and advertising agencies working for retailers will need to become more data-driven and analytics-oriented so they can design campaigns that deliver advertising messages to consumers with surgical accuracy.

Technology is making omnichannel retailing inevitable and is reducing the ability of geography and ignorance to shield retailers from competition. It is breaking down the barriers between different retail channels as well as the divisions that separate retailers and their suppliers. At the same time, omnichannel retailing expands the overall pie by extending market reach and introducing consumers to products they may not have known about. Supply chains that generate increased consumer value are likely to win in the long run. More transparency is likely to speed up this process, leading to more of a "winner-take-all" effect. As a result, retailers and manufacturers will need to find an area where they are truly the world's best, as opposed to just working harder to hide from competition. With omnichannel retailing, competition will increase on many fronts, but so will the opportunities for savvy retailers and supply-chain partners to gain competitive advantage.

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REFERENCES

1. comScore, "comScore Reports February 2013 U.S. Smartphone Subscriber Market Share," April 4, 2013, www.comscore.com/Insights/Press_Releases/2013/4/comScore_Reports_February_2013_U.S._Smartphone_Subscriber_Market_Share; and Nielsen, "For U.S. Consumers, Different Stores Mean Different Smartphone Shopping Behavior," May 4, 2012, www.nielsen.com/us/en/newswire/2012/for-u-s-consumers-different-stores-mean-different-smartphone-shopping-behavior.html.

2. K. Zickuhr, "Three-Quarters of Smartphone Owners Use Location-Based Services," May 11, 2012, http://pewinternet.org.

3. A. Ignatius, "How eBay Developed a Culture of Experimentation," Harvard Business Review 89, no. 3 (March 2011): 92-97.

4. E. Brynjolfsson, Y.J. Hu and M.S. Rahman, "Battle of the Retail Channels: How Product Selection and Geography Drive Cross-Channel Competition," Management Science 55, no.11 (November 2009): 1755-1765.

5. M. Luca, "Reviews, Reputation, and Revenue: The Case of Yelp.com," working paper 12-016, Harvard Business School, Cambridge, Massachusetts, September 2011, http://papers.ssrn.com.

6. J. Zinman and E. Zitzewitz, "Snowed: Deceptive Advertising by Ski Resorts," working paper, Cambridge, Massachusetts, June 2009, http://papers.ssrn.com.

7. Brynjolfsson, Hu and Rahman, "Battle of the Retail Channels"; and B. Nault and M.S. Rahman, "Reach Versus Competition in Channels with Internet and Traditional Retailers," working paper, University of Calgary, Calgary, Alberta, July 2012.

8. E. Brynjolfsson, Y.J. Hu and M.D. Smith, "From Niches to Riches: The Anatomy of the Long Tail," MIT Sloan Management Review 47, no. 4 (summer 2006): 67-71.

9. D. Streitfeld, "Amazon Signs Up Authors, Writing Publishers Out of Deal," New York Times, Oct. 17, 2011, p. A1.

i. More details are available in Brynjolfsson, Hu and Rahman, "Battle of the Retail Channels," http://ebusiness.mit.edu/research/papers/2009.06_Brynjolfsson_Hu_Rahman_Battle of the Retail Channels_287.pdf, 2009.

Reprint 54412.