3-2022

How augmented reality can - and can't - help your brand

CHANDUKALA, Sandeep R.
Singapore Management University, sandeepc@smu.edu.sg

Karempudi Srinivas REDDY
Singapore Management University, sreddy@smu.edu.sg

Yong-Chin TAN

Citation

How Augmented Reality Can — and Can't — Help Your Brand
by Sandeep R. Chandukala, Srinivas K. Reddy, and Yong-Chin Tan

Published in Harvard Business Review, March 29, 2022
https://hbr.org/2022/03/how-augmented-reality-can-and-cant-help-your-brand

Summary. Customers want AR. But managers must have a proper understanding of how AR can help their brand before they invest in the technology. AR helps in entertaining and educating customers while also aiding them in evaluating products. AR can also promote online channel adoption while also encouraging category expansion. AR also benefits products that are less popular, less mainstream, and more expensive. But AR can also be expensive, time-consuming, and difficult to implement. Despite consumer demand, retailers must understand the costs and challenges associated with AR adoption before embarking on significant projects.

Determining whether to use augmented reality (AR) is a complex decision for any business. Factors such as development costs, finding appropriate use cases, and maintaining the technology have dissuaded many brands from creating AR experiences. According to Mobile Marketer, 52% of retailers say that they're not ready to integrate AR into their shopping experiences.

However, customers enjoy using AR applications, and they're becoming reliant on the tools to make purchase decisions. For example: 56% of shoppers surveyed by NielsenIQ said that AR gives them more confidence about the quality of a product, and 61% said they prefer to shop with retailers that offer AR experiences.

Despite consumer desire for AR, brands have important questions about the technology and its impact on the bottom line. For example: Does AR get past novelty and entertainment value to provide value to customers and firms? Does AR affect the way customers evaluate brands? Do the sales justify the investment?

Based on our recently published research in the *Journal of Marketing*, conducted in partnership with a large international cosmetics and beauty retailer, we find that AR usage in online settings dramatically affects customer engagement, customer behavior, and sales. As one of the early adopters of AR, our retail partner incorporated the technology into their mobile app to let customers virtually try on make-up products (e.g., eyeshadows, lipsticks). Subsequently, they tried this technology in their brick-and-mortar stores as a way to test sampling of specific products and also provide a more convenient option for shoppers.

Our research sheds light on and answers some of the important questions that brands and retailers grapple with: How is customer product sampling behavior different with AR? Can AR increase revenue? How does the impact of AR differ across customers and brands?

Product sampling behavior is different with AR.

We first conducted an in-store field study to understand how shoppers engaged with AR in a natural setting. The AR interface was installed on a sampling fixture, allowing shoppers to try lipsticks virtually, without the need to physically apply the product. To compare how browsing behavior on the AR interface differs from the conventional way of trying products in stores, physical product testers for 16 featured products (i.e., four different shades of lipsticks from four brands) were also placed at the sampling fixture.

To capture shoppers' actions in an unobtrusive manner, we used state-of-the-art sensing devices mounted on the ceiling by partnering with Flow Insights, Inc. This technology captures detailed information about

shoppers' overt characteristics (e.g., gender; if shoppers were alone or in the presence of others; if shoppers were carrying a basket) and their physical interactions with the product testers (e.g., number of products sampled, duration of sampling each product). We then matched this data to activity records on the AR interface to obtain a holistic account of how shoppers sample products physically and virtually.

Compared to shoppers who sampled lipsticks using product testers, shoppers who sampled lipsticks on the AR interface spent almost 50% more time at the sampling fixture. These shoppers also sampled 7.5 times more products on average. Of the 16 featured lipsticks that were available on the AR interface and as product testers, shoppers who used AR sampled 1.8 times more lipsticks on average. Additionally, they also sampled 13 non-featured lipsticks (i.e., lipsticks available on the AR interface, but not as physical product testers) on average. These results suggest that by making the sampling process more convenient (compared to physical product testers), AR encourages shoppers to explore and try more products.

An examination of the distribution of sampling activity also reveals interesting findings. Among the 16 featured lipsticks, most sampling activity for product testers was concentrated on two lipsticks from a specific brand. This distribution indicates that when shoppers sample products using product testers, they tend to focus only on a few key products and brands. In contrast, sampling activity was more evenly distributed across the 16 featured lipsticks when shoppers tried them using AR. Thus, products and brands that are less popular may benefit more from AR due to the increased sampling activity.

AR increases revenue.

As customers' path-to-purchase on the app is electronically recorded, we were able to establish a direct link between the products shoppers tried using AR, and products that they eventually purchased. Our dataset contained detailed browsing activities for more than 160,000 customers over a 19-month period for more than 800,000 mobile app sessions. By combining this rich dataset with customers' offline purchase history and detailed product information, we were able to obtain deeper insights on how the impact of AR usage on sales varies across different customers and products.

Consistent with findings from the in-store field study, we find that customers who used AR during the session spent more time browsing and viewed more products compared to customers who did not use AR. Customers who used AR spent 20.7% more time on the app and viewed 1.28 times more products on average. More importantly, their likelihood of making a purchase during the session was also 19.8% higher than customers who did not use AR, providing some evidence that AR can help businesses increase revenues.

AR's impact differs across customers and brands.

Compared to existing online customers, we find that AR usage has a stronger influence on purchases for customers who have never purchased a specific product from an online channel, suggesting that AR can help to reduce purchase anxiety for customers who are uncomfortable making online purchases. Similarly, AR has a greater effect for customers who are purchasing from the product category for the first time compared to those who have purchased from the product category before. Thus, when customers are unfamiliar with a product category, they rely more on AR to reduce the risk of making a potentially disappointing purchase. AR thus has the potential to encourage the adoption of online channels and bring in new category users for retailers and businesses.

The impact of AR usage on product sales is stronger for less popular brands. When customers use AR to try products, they are more likely to purchase from brands that are less popular. Besides encouraging customers to consider more brands (as we have seen in the in-store field study), AR also gives customers the ability to determine how well each product fits their needs, reducing their reliance on brand signals in the purchase process. As a result, the availability of AR could inadvertently level the playing field for brands that are less popular.

AR usage also has a stronger influence on purchasing for less mainstream products. These products typically appeal to a narrower target audience and are sometimes referred to as the "long tail" of product sales. Furthermore, the effect of AR usage is also greater for products that are more expensive. These findings suggest that customers feel more comfortable making riskier purchases when they can try them using AR. Thus, AR may be able to help businesses stimulate demand for niche or premium products to increase revenues.

3 Important AR Use Cases

The three main uses of AR loosely correspond to customers' journey from awareness to interest and consideration (although they may not be mutually exclusive). Specifically, the uses are entertainment, education, and product evaluation.

Entertain: AR's ability to transform static objects into interactive and animated three-dimensional objects offers new ways for marketers to create fresh experiences to captivate and entertain customers. For example, Walmart collaborated with media companies such as DC Comics and Marvel to bring exclusive superhero-themed AR experiences to selected outlets. In addition to creating novel and engaging experiences for customers, it also encouraged them to explore different locations within the stores.

Educate: Due to its interactive and immersive format, AR is an effective medium to deliver information and content to customers. Firstly, AR can help customers visualize and understand complex processes or mechanisms. For example, Toyota and Hyundai have leveraged AR to demonstrate key features and innovative technology in their new car models. Secondly, AR can be used to provide directions or help customers navigate in stores. Retailers such as Walgreens and Lowe's have developed in-store navigation apps that overlay directional signals onto a live view of the path in front of users to guide them to product locations. Thirdly, AR can be used to provide additional information or highlight features in the physical environment. For example, Lowe's in-store navigation app also notifies users if there are special promotions along the way.

Evaluate: By retaining the physical environment as a backdrop to virtual elements, AR helps users visualize how products fit in their actual consumption contexts, allowing them to more accurately assess product fit prior to purchase. For example, Ikea's "Place" app uses AR to give customers a preview of how furniture pieces would appear in their homes without the hassle of taking any measurements. Similarly, L'Oréal and Sephora are using AR to offer customers realistic previews of their appearance when they wear/try different cosmetic products.

4 Factors that Impact AR Experiences

Given the novelty of AR, managers are primarily concerned with how different factors affect users' experiences with the technology. Focusing on distinguishing features of AR, we have identified four important factors that managers need to consider:

Spatial presence: As users' physical environments provide the context for virtual objects, AR experiences are most effective when virtual objects are appropriately integrated with objects or features in the physical environment. For example, using surface detection and depth-sensing technology, Ikea's Place App scales their three-dimensional virtual furniture and "place" them on flat surfaces to provide an accurate representation of how they will appear in users' physical space.

Embodiment: AR users expect to be able to control virtual objects using their physical movements, as if they were interacting with physical objects in the real world. For example, Warby Parker uses motion detection so that customers who are trying virtual glasses with the AR feature can view different angles of the product as they turn their heads.

Fidelity: To create the illusion that virtual objects exist in the physical world, fidelity is an important feature of AR. Tactics to create convincing AR experiences include the strategic use of lighting, shadows, textures, and sound effects (e.g., a soft thud when a virtual object is "placed" on the ground) when designing virtual objects.

Motion: Animating virtual objects is an effective tactic to capture user's attention. For example, in an earlier demo version, Google Map used an animated fox to guide users. However, the fox was removed in subsequent versions because it detracted users from focusing on their physical surroundings (which could be fatal when users are walking on streets). This example illustrates how the use of motion requires special considerations when it comes to AR.

Fidelity and spatial presence may be more important if AR will be used to help customers evaluate products. Spatial presence and embodiment may be more important if AR will be used to help customers navigate in stores. This information can provide some guidance to help managers determine which aspects to prioritize to design effective AR experiences.

AR Adoption Challenges

AR technology adoption challenges can be broadly classified into six areas: cost of implementation issues, lack of talent and expertise, ability to build AR filters and narratives, latency issues, lack of adequate resources, and keeping with rapid changes in technology. Firms interested in AR implementation could incur varying costs depending on the technology and the industry the firm is operating in. Managers across various industries must realize that the cost of AR implementation can vary from $50,000 (for real estate apps) to more than $200,000 (for an electronics retailer) with the development time varying from four to six months, respectively.

Firms aiming to implement AR apps must decide about either building the app in-house or buying the app from third-party app builders. The challenge in building the app in-house is the requirement of right talent and expertise like 3D modelers, knowledge of software tools (like SDK etc.) and coding ability. In addition, there are issues associated with building AR filters and creatives and lack of adequate resources to build AR apps i.e., costs involved with appropriate hardware and software purchases and keeping with the associated changes in technology over time.

Finally, latency issues are a challenge that cannot be ignored during AR technology implementation. During AR implementation information from tracking and imaging devices and user input devices need to be gathered and rendered quickly and smoothly. Latency issues relate to delays due to communication over networks and in the case of AR rendering of various objects in user's world could be delayed due to slower processing. This could be a huge deterrent for firms trying to implement AR because an AR app with latency issues could be worse than not having an AR app at all.

Customers want AR. But managers must have a proper understanding of how AR can help their brand before they invest in the technology. AR helps in entertaining and educating customers while also aiding them in evaluating products. AR can also promote online channel adoption while also encouraging category expansion. AR also benefits products that are less popular, less mainstream, and more expensive. But AR can also be expensive, time-consuming, and difficult to implement. Despite consumer demand, retailers must understand the costs and challenges associated with AR adoption before embarking on significant projects.

Sandeep R. Chandukala is Associate Professor of Marketing, Lee Kong Chian School of Business, Singapore Management University.

Srinivas K. Reddy is Professor Emeritus of Marketing and Ex-Director, Center for Marketing Excellence, Academic Director, LVMH-SMU Luxury Brand Initiative, Lee Kong Chian School of Business, Singapore Management University.

Yong-Chin Tan *is Assistant Professor of Marketing, City University of Hong Kong.*