

Managing Multi- and Omni-Channel Distribution: Metrics and Research Directions

Kusum L. Ailawadi ^{a,*}, Paul W. Farris ^b

^a Tuck School of Business, Dartmouth College, United States

^b Darden School, University of Virginia, United States

Available online 19 January 2017

Abstract

The increase in the variety of channel formats, and the progression from single, to multi-, then to omni-channel marketing has made shopping and buying more convenient for consumers, but trickier to manage for marketers—both upstream suppliers and downstream retailers. **The first step in managing multi- and omni-channel distribution is to find the specific metrics that will facilitate reliable analysis of the relationship between distribution and marketing objectives.** That is our primary goal in this article—to present the metrics, both old and new, that marketers, both suppliers and retailers, need to monitor, and that academic researchers, both theoretical and empirical, should incorporate in their models. We present a basic framework for managing distribution, and summarize the metrics that are relevant to each element of the framework. Then, we lay out what we believe are important questions that multi- and omni-channel marketers are grappling with, refer the reader to what existing academic research has to say about them, and suggest how future research can build off our framework and metrics to supplement what is known and address what is not.

© 2016 New York University. Published by Elsevier Inc. All rights reserved.

Keywords: Distribution strategy; Multichannel; Omnichannel; Marketing metrics; Distribution metrics; Distribution coverage

Introduction

Selecting the right combination of metrics to monitor and manage distribution is a challenge for even the most sophisticated marketers and it is not getting easier. The increase in the variety of channel formats, and the progression from single, to multi-, then to omni-channel marketing has made shopping and buying more convenient for shoppers, but trickier to manage for marketers—both upstream suppliers and downstream retailers.

Multichannel and omnichannel are terms that marketing practitioners and academics generally use in the context of retailers or of suppliers who sell directly to consumers through their own catalog, offline, and online channels. Verhoef, Kannan, and Inman (2015) exemplify this, and so do the articles in the special issue of the *Journal of Retailing* they write about. Multichannel refers to the design, deployment, coordination, and evaluation of the different channels through which the marketer acquires,

retains, and develops customers (Neslin et al. 2006). Its focus is on managing and optimizing the performance of each channel. The concept of omnichannel accepts the inevitability of needing to employ multiple channels and is focused on integrating activities within and across channels to correspond to how consumers shop. Another aspect of the term omnichannel is that it often encompasses not just the channels of distribution through which a supplier's products reach the consumer but also the channels of communication – owned, paid, and earned – through which a marketer interacts with the consumer. Thus, the typical scope of omnichannel is narrow in one respect – referring to company-owned distribution channels – but broad in another – blurring the notions of push and pull and sounding like integrated marketing communications.

We take the converse perspective in this article, one that we believe is important yet under-researched. We focus only on channels of distribution but we consider suppliers who distribute their products to consumers through not only company-owned but also independent retail channels. Single channel suppliers mainly faced the problem of determining the right distribution breadth for their brands, trading off easy availability against

* Corresponding author.
E-mail addresses: Kusum.ailawadi@dartmouth.edu (K.L. Ailawadi),
FARRISP@Darden.virginia.edu (P.W. Farris).

cannibalization and conflict among channel members, and selecting specific members that best fit the brand. And that was tough enough! Multichannel marketing lets suppliers employ different channels of distribution to reach different market segments with different needs and tries to align customer segments and product lines with channels. The segments may be different people or the same people at different stages in the customer relationship. The multi-channel supplier usually focuses on trading off increased reach and service with conflict among channel members, mainly asking itself whether to use multiple channels and how to minimize conflict.

As omnichannel efforts by their downstream retail partners have increased, it has become important for suppliers to pay attention to the implications for their own channel management practices. They need to weave together, manage, and reward a combination of many types of channels to match how customers want to search, buy, and return. Managing omnichannel distribution is like recruiting and coaching a team of players with different roles and skills, not only the best athletes in different fields. Linemen rarely make touchdowns, but they protect the players who do. So, if some channels increasingly get used as showrooms while purchases get made elsewhere, the showrooms need to be rewarded. Becoming omnichannel is not easy for retailers, as all the writing in the business and academic press makes clear. But, if it is a problem for retailers, it is an even tougher problem for suppliers to build a team and reward the linemen, integrating not within one organization but across multiple independent firms.

Good metrics inform good management. Marketers need the right metrics to measure the effectiveness of their distribution decisions, balancing their own performance vis-à-vis their channel partners' performance in order to sustain the relationship. So the first step in managing multi- and omnichannel distribution is to find the specific metrics that will facilitate reliable analysis of the relationship between distribution and marketing objectives. That is our primary goal in this article—to present the metrics, both old and new, that suppliers and retailers should monitor, and that academic researchers, both theoretical and empirical, should incorporate in their models. We begin by presenting a basic framework for managing distribution. Then we discuss the metrics relevant to each component of the framework. Finally, we lay out what we believe are important questions that multi- and omnichannel marketers are grappling with, refer the reader to what existing academic research has to say about them, and suggest how future research can build off our framework and metrics to supplement what is known and address what is not.

Why such an emphasis on metrics, the reader may ask. We can offer several reasons. For starters, the specific metrics that researchers use in their models strongly influence the estimated effects and therefore the implications for practice. This is a rather under-appreciated fact. Second, while many metrics from the bricks and mortar (for convenience, we will refer to it as “offline” in the rest of the article) channel continue to be relevant today, new ones are needed to complement them in the online and mobile channels. Fortunately, many of the new metrics are easier to compile than the traditional offline ones, and therefore open up opportunities for research that were not feasible before.

However, some of the newer metrics that we present have not yet stood the test of time and we are the first to recognize that they are a beginning, not the final say.

Third, “big data” is a trend that marketers must learn to ride or be outpaced by competitors who will. Technology has enabled more ways to track more channels more often. No single metric or even two or three metrics, are likely to tell managers what they need to know about their channel performance. But more data are not always better and that applies especially to distribution metrics. Marketers must carefully construct a portfolio of metrics that tell them what they need to know and when they need to know it, about channel coverage, the contributions and performance of all partners in the ecosystem, and the sustainability of those partnerships. We also hope that commercial data suppliers will collect and compile these metrics and make them available to practitioners and academics.

Fourth, there is a need for marketers, both upstream and downstream, to change their mindset about the extent to which different channels compete with and complement one another. And, along with the changed mindset comes the need for new metrics. Suppliers are wise to pay attention to whether channel partners are behaving in ways that will support the brand and customer experience for both sides. As one example, free riding is not a new problem, though it got a new name with “showrooming”. Existing retailers, especially those with large investments in bricks and mortar, decried it, and with good reason, as savvy consumers looked in the stores and bought online at a lower price. That continues to be the case, but, by some accounts, “webrooming” is just as prevalent as showrooming. And mobile has re-established the importance of physical location, re-defined convenience and in-store visibility, and increased the reach, in both space and time, of savvy marketers. As Avi Goldfarb, a researcher who studies the differences between online and mobile, writes, “*the internet killed distance; mobile brought it back*” (Goldfarb 2013), and as David Bell, who has documented several ways in which physical location influences online behavior, writes “*location is still everything*” (Bell 2015). With the help of mobile, retailers are trying to make their stores effective showrooms for their own web channel instead of for online competitors like Amazon.com. At the same time, suppliers who decide they want distribute through both sets of retailers must figure out how to measure the contributions of different channels along the path to purchase and reward them.

Before we proceed, we also want to say what this article is not. It is not a review of the academic literature. The metrics and the directions we suggest for future research are not derived from prior research—they are motivated squarely by the issues facing marketers. Of course, we would be remiss if we did not identify what we know about these issues from the existing literature. So, we provide relevant academic references, especially in section on research directions, highlighting papers that we believe offer a unique, broad, or generalizable view of each topic.

Guiding Framework

Fig. 1 presents a simple but useful framework for how marketers and academics should think about measuring and

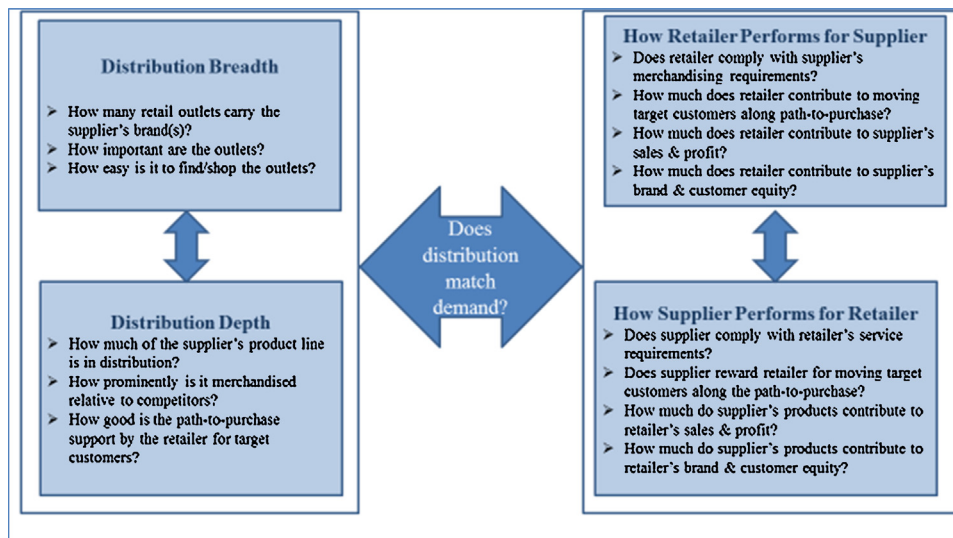


Fig. 1. A framework for measuring and managing distribution.

managing distribution. As Farris, Olver, and deKluyver formalized in 1989, there are two dimensions of distribution—coverage or breadth, and in-store attractiveness or depth. Distribution breadth is about how easy it is for a consumer to find an outlet that stocks the brand. Breadth may be high because the brand is stocked in a large number of outlets, or because it is stocked in the ones that are most important in the market or are very prominently situated. Distribution depth, on the other hand, is about how easy it is for a consumer to find the brand within a stocking outlet, and how attractive the brand looks relative to its competition. Depth may be high because a large portion of the brand's product line is stocked, because it is prominently merchandised in the outlet, and the retailer is equipped and willing to provide consumers with the information they need along the path to purchase.

The two-sided arrow between breadth and depth in Fig. 1 signifies that the two are not independent of one another. While breadth and depth are two important and separate dimensions of distribution, they need to be carefully balanced with an eye to achieving a sustainable combination. How broadly a supplier distributes its products influences the depth that stocking retailers are motivated to invest in. The healthy competition among resellers that distribution breadth fosters can improve depth. But too little breadth means sales may come easy, so complacent retailers do not feel the need to work hard on depth. And too much breadth means retailers compete too intensely. Some retailers will discount prices which squeezes their margins. They then reduce inventories and shelf space, and skimp on important services such as stocking a full product line or having a trained staff to support it. So how well a supplier manages its distribution breadth will influence the depth of distribution it achieves.

But why the reverse arrow? Because suppliers often use the depth of distribution they enjoy as a gauge for whether they need to adjust breadth. And also because, as we will discuss later, depth determines an important aspect of breadth in online channels. Breadth online is about how easy it is for a consumer to find the brand online, for example, the position of websites stocking

the brand on the first Search Engine Results Page (SERP). The SERP position is driven by its relevance and quality—which search engines like Google assess from, among other things, landing page experience, click-through and bounce rates, all of which are aspects of distribution depth.

What is all of this measurement and management of distribution intended to accomplish? Together, breadth and depth of distribution drive performance in the market, both of the upstream supplier and its downstream retailers. But, each party has a fundamentally different perspective. The supplier is focused on its own brands and how much the retailer contributes to the performance of those brands. The retailer is focused on an entire category and store (or even the retail chain) and is concerned with how much the supplier and its brands contribute to that performance. This divergence of perspectives goes along with the classic problem of double marginalization whereby retail prices and sales effort in independent channels are not maintained at their total channel profit maximizing levels (Jeuland and Shugan 1983). The result is inevitable tension in how the total channel efforts and profit should be split between the parties to achieve a balance that can sustain the channel partnership. The two-sided arrow between the supplier's and retailer's perspective on performance signifies the need to find this balance. Neither can afford to focus only on its own performance at the expense of the other—at least not for too long.

And finally, the two-sided arrow in the middle of the figure signifies the need to balance distribution breadth and depth with the performance of both suppliers and retailers by matching distribution to market demand. In most retail markets there is an "equilibrium" relationship between a brand's demand and supply, its market share and distribution (Reibstein and Farris 1995). The brand must have sufficient availability to support its share goals. Retailers require sufficient turnover to support the shelf space and inventories, and suppliers have to adjust advertising, promotion and other consumer pull efforts to hit velocity targets. Together, these and other effects produce a balance between share and distribution levels. It is an uneasy balance, because

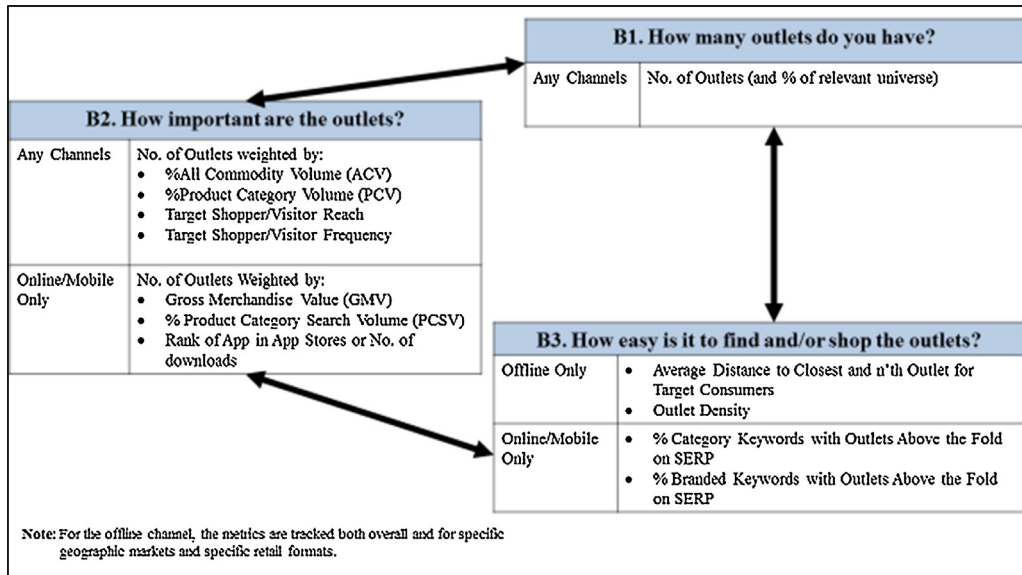


Fig. 2. Distribution breadth metrics.

competitors are constantly challenging with new products that seek their own place in the distribution ecosystem or with investments in pull to jump-start demand and investments in push to improve distribution. And at the same time, new retailers as well as other intermediaries with new revenue models disrupt the existing system. So, there is a need to constantly monitor and “tune” the system to improve performance.

In the next three sections, we present relevant metrics for each of these components of Fig. 1—distribution breadth, distribution depth, and distribution performance.

Measuring Stocking Outlet Findability: Metrics for Distribution Breadth

There are three fundamental measures for measuring distribution breadth in the offline world: Numeric, All Commodity Volume (ACV), and Product Category Volume (PCV). Fig. 2 lists those as well as others we have compiled that are relevant to offline distribution alone, to online distribution alone, or to both. We have organized the metrics under the three questions about breadth that we introduced in Fig. 1: “how many,” “how important,” and “how findable/shopable.” Clearly, the three questions are not independent of one another. The more outlets there are, the easier they are to find, at least offline. And the more findable they are, the more important they become.

Numeric distribution simply indicates how many outlets stock a supplier’s brand(s), either as a count or as a percentage of the total “universe” of relevant outlets. Numeric distribution can count either the number of reseller accounts or the number of stores (often referred to as “doors.” The latter is clearly more informative offline. For example, Finish Line may stock Brooks running shoes, but it is important to know whether the brand is in less than a tenth or in most of the chain’s 700 stores. Of course, the notion of a “door” is not necessary online, as a reseller will usually have only one or a small number of doors (e.g., for the

main store and an outlet store), even if there are many “affiliates” and paths that can lead to the door). All other measures of breadth take into account how “important” an outlet is, which is very useful given the structure of the retail industry and its long tail of very small stores.

Weighting Outlets by ACV, PCV, and GMV Collapses the Long Tail of Distribution

One way to measure the importance of a given outlet is by its sales volume. ACV and PCV weight the stocking outlets by their All Commodities Volume and the specific Product Category Volume respectively. So, ACV-weighted distribution (%ACV) refers to the percentage of total commodity sales in the relevant market that stocking outlets account for. Marketers of consumer packaged goods (CPG) typically rely on ACV or PCV, which are readily available from A.C. Nielsen, Symphony IRI and other retail-audit companies.¹ These are much better than the numeric measure because they collapse the long tail of outlets into equal percentage points of sales potential. Although it is probably easier to convince a small mom-and-pop grocery or convenience store to stock your new energy drink or snack bar, it may require thousands of those stores to equal the potential of even a small fraction of Walmart stores.

One point is important to make here. These metrics for distribution breadth generally refer to “brand” distribution—as long as an outlet stocks at least one stock keeping unit (SKU) of the brand, it is considered a stocking outlet. What this means is that for brands that have a large product line and that are strong enough to have made their way onto the shelf in most retail outlets, at least in CPG where intensive distribution is the norm,

¹ In other cases, especially durables and soft goods, marketers may have to be inventive about how to collect weighted-distribution breadth data that are sufficiently reliable.

%ACV and %PCV may be very high and fairly constant. High values of these measures are a critical driver of sales, but the lack of variation makes them less useful as metrics to track over time for established and leading brands.

For new products in growing categories, %ACV is likely to be more useful because sales potential could be higher than the current size of the category. Within a retail format (e.g., supermarket format or mass merchant format), %ACV and %PCV are likely to be very highly correlated for mature CPG products. In most other cases, especially for durable products in established categories, %PCV is the metric that most closely reflects the share of the existing market accessed through the stocking outlets. %PCV is just as applicable to digital products as to physical ones. Consider, for example, Apple Pay. Apple reports the number of banks it has been adding to the ranks of those that support its mobile payment service, but more important is the growth in its PCV coverage. For example, the company touted the fact that banks supporting Apple Pay represent about 90% of all U.S. credit card purchase volume just two months after launch.² A shortcoming of %PCV is that it reflects where category sales are currently transacted and says little about the potential for increasing sales through other, growing channels. To that extent, it is a somewhat backward-looking measure.

Online marketplaces such as eBay, Amazon, and Alibaba report a metric called gross merchandise value (GMV)—the total value of business transacted by third parties on their sites (Chu and Wong 2014). For a retailer, this is virtually the same as ACV because its revenue equals its sales volume. But for a marketplace, GMV is a lot bigger than the marketplace's own revenue, which is only a fraction (their commission) of the GMV. GMV is the analogue to ACV for a supplier assessing the importance of a marketplace.

Traffic is Important

Traffic, made up of Reach and Frequency, is another way to answer the question, "How important are our distribution outlets?" An outlet can not sell much if it does not get sufficient traffic, but high traffic channels can be valuable even if many of the consumers that come through complete their purchases elsewhere. And weighting distribution by traffic can be especially useful for marketers of products that are bought on impulse.

Similarly, online outlets can be weighted by the volume of search that occurs on their sites, either overall or for the specific product category. Search is a little further along than visits in the shopper funnel, since consumers who search for something presumably have some interest in buying it. It is also more forward looking than %PCV.

For offline retailers, shopper reach and frequency are not reported as much as %ACV or %PCV, but can be very useful as indicators of sales potential and customer exposure. It is telling, for example, that Walmart, according to its annual report, had

140 million shoppers per week in its U.S. stores during 2014. Online, number of unique visitors and visit frequency, along with search metrics such as keywords searched, average time on site, and page views, are more easily measured and more regularly monitored with data from companies like ComScore and Quantcast.

Traffic and search volume today are likely leading indicators of where sales will be tomorrow. Evans and Schmalensee (2016) note that the decline in traffic at malls, which has been even faster than the decline in sales, like the expiration of the canary in the coal mine, signals trouble ahead.

"For decades, physical retailers, from small boutiques on Main Street to massive shopping malls in the suburbs, have designed their businesses to encourage people to come in, browse, and discover, and then to buy and carry the merchandise home. That has dictated the size of their stores, how they are laid out, their marketing, their prices and much more. . . . Those business practices don't make as much sense when all a consumer wants to do at a brick-and-mortar facility is pay and pick up his merchandise as efficiently as possible." pp. 186–187.

Indeed, the growing percentage of searches for a growing percentage of product categories that are now begun on Amazon (versus, say, Google) give the e-tailer massive leverage over suppliers. Amazon likely captures the vast proportion of sales from those who search at the website. But many other retailers, both offline and online, are not so fortunate. Weighting the importance of outlets by traffic and search, not just by sales, is particularly relevant when consumers may (re)search products in one channel, check prices in another, make the purchase in a third, and pick it up (and maybe return it) in a fourth. Suppliers need to understand where their target market searches and where it buys, to measure distribution breadth, and to decide where they should expand and who they should reward.

All Traffic is Not Equal, Nor Are All Sales

For many non-CPG products, particularly performance and prestige brands, how important an outlet is depends on the traffic (or search or sales) it gets not in total, but from the brand's target market. For example, running shoes are sold in several different retail formats. The General Sporting Goods channel has almost 50% of all running shoes. In contrast, the Specialty Running Stores channel only accounts for a little over 20%. And yet the specialty channel is most important for a performance brand like Brooks. The reason is that Brooks targets serious runners with performance-running shoes and therefore assesses the importance of channels based not just on sales of running shoes (PCV) but on where their target market of runners researches and buys running shoes. Many people buy "running" shoes with no intention of running in them and the brand is not interested in them. The specialty channel has the highest proportion of what Brooks calls running doors, i.e., stores where serious runners shop.

² Of course, the bigger issue for Apple Pay is its %PCV among retailers—which remains very low. Consumers are not going to use Apple Pay unless the stores where they do most of their shopping accept it.

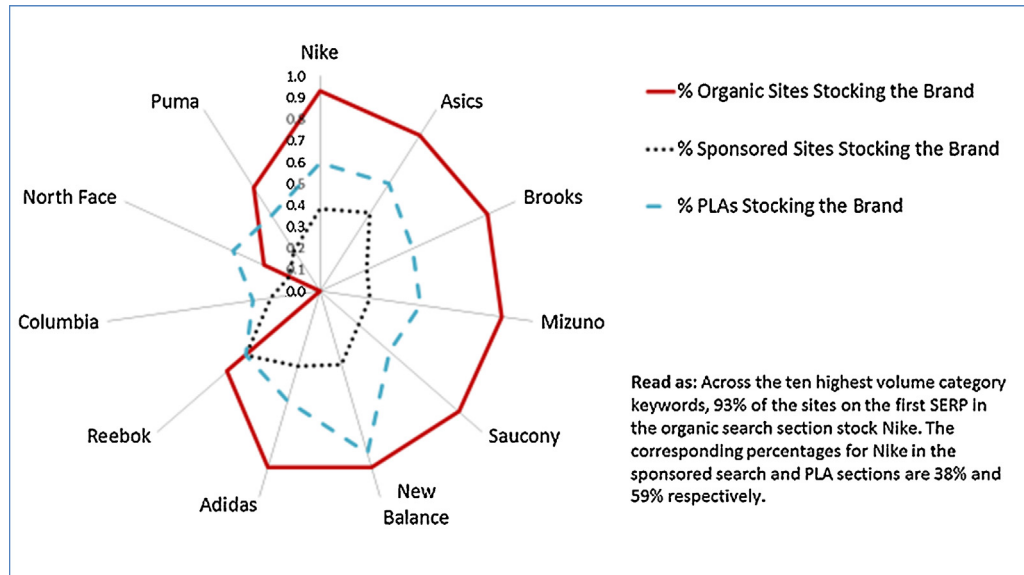


Fig. 3. Online findability metrics for running-shoe brands.

The Stocking Outlets Have to Be Easy to Find Online as Much as Offline

For most frequently bought convenience products—and CPGs certainly come under that category—consumers are not willing to search or travel far. In the brick-and-mortar world, store density and the average distance that consumers must travel to the nearest store are important indicators of market coverage for such products. Even for high-ticket categories like cars, for which consumers search a lot, distance and density are important. Consumers travel farther for a car than for a detergent brand, but they limit travel distance for new-car shopping knowing that the car will have to be serviced later on. Distance to the closest dealer is important for shopping and servicing, but consumers want multiple options for comparison shopping, so density and distance to, say, the tenth-closest dealer, which reflects the extent of dealer competition, are also influential (Bucklin, Siddarth, and Silva-Risso 2008).

Online, the notion of distance and density is irrelevant (of course it affects delivery). But being easy to find is key. Distribution breadth online is much less about the number of sites that stock the brand than it is about how easily a consumer looking for the product category or the brand can find a site that stocks the brand. How prominently stocking outlets show up on the first SERP for a category or branded keyword is therefore a valuable measure of findability. It is likely to be correlated with PCV since outlets with high sales of the category and the brand the consumer is searching for would presumably be deemed more relevant by search engine algorithms. But even small outlets have the opportunity to show up “above the fold” (which means being visible on the screen without the need to scroll down) on the SERP with investment in good search engine optimization and search advertising. So, as availability and search become intertwined online, so do advertising and distribution.

It may not be necessary to be listed at the very top of the SERP on desktops. Click-through rates on ads do decline with position,

but conversion rates may not (Agrawal, Hosanagar, and Smith 2011). Presumably, serious buyers make the effort to search at lower positions than information seekers, and will also tend to buy more from them. On mobile, however, a top rank on the SERP is extremely important (Ghose, Goldfarb and Han 2012). Also, as mobile users spend more and more time on apps (versus the mobile internet), an additional distribution breadth metric of import is the number of app downloads of stocking outlets or the average rank of stocking outlets’ apps in the app stores. Of course, many apps that consumers download are never used, but app usage increases sales (Dinner, van Heerde, and Neslin 2015) and if apps for stocking outlets are not downloaded, the suppliers’ products may be left out of consumers’ consideration sets early in the purchase funnel.

The radar chart in Fig. 3 summarizes online findability metrics for the major running-shoe brands based on search results for the ten highest volume category keywords (e.g., “running shoes,” “best running shoes,” “trail running shoes,” etc.). Across these keywords, we compute the % of sites showing up on the first SERP (in organic, sponsored, and PLA sections) that stock each brand. We have ordered the brands in clockwise decreasing order of market share (Nike has the highest share and Puma the lowest). There is not much variation in these online breadth metrics across the larger share brands, just as ACV and PCV for high share CPG brands tend to be clustered between 90% and 100%. The variation is even smaller for metrics based on branded keywords because, other than keyword poachers, the outlets that show up above the fold on the first SERP generally do carry the brand.³

³ Poaching in search advertising refers to a brand bidding on the branded keyword for one or more of its competitors in an effort to get into the consideration set of consumers who are looking for the competing brand and steal share. Sayedi, Jerath, and Srinivasan (2014) study the phenomenon using a game theoretic model.

Any Channels	Offline Only	Online/Mobile Only
D1. How much of the product line is in distribution?		
<ul style="list-style-type: none"> • Total SKU Distribution • Average No. of SKUs in Outlet 		
D2: How prominently is it merchandised relative to competitors?		
<ul style="list-style-type: none"> • Share of SKUs in Store • Store Within a Store • % Time on Promotion • % Promotional Discount 	<ul style="list-style-type: none"> • Share of Shelf • Share of Facings • % Time on Special Display 	<ul style="list-style-type: none"> • Share of Thumbnails • % Product Listing Ads (PLAs) on Search Engine Results Page for Relevant Keywords • Brand on Landing Page • Average Clicks to Brand • Average Clicks to Buy Brand • % SKUs Above the Fold on Product Display Pages
D3: How well is it supported along the path-to-purchase?		
<ul style="list-style-type: none"> • Product Information Availability • Inventory Information Across Channels • Ability to Buy Online and Pick-up/Return in Store 	<ul style="list-style-type: none"> • No. and % of Staff Trained on Brand • Ability to Order Online in store 	<ul style="list-style-type: none"> • Availability of Chat Bots and Live Chat Staff Trained on Brand • Inventory information in nearest store

Fig. 4. Distribution depth metrics.

Metrics Must Be Integrated Across Channels to Get a Complete Picture of Distribution Breadth

Overall availability in any geographical market is made up of offline as well as online coverage, so marketers will find it helpful to integrate the two. One aspect of integration is combining offline and online breadth into overall breadth. Marketers can re-compute each stocking outlet’s ACV (or GMV for an online marketplace), PCV, or both as a percentage of the total in the geographical market summed across offline and online. The market-level information on online sales by each outlet required to do this may not be easy to obtain, but is well worth the effort. The aggregation can be done at the brand level, if the goal is for online to fill the brand’s distribution holes in markets where offline coverage is thin. And it can be done at the SKU level if the goal is to improve availability of specific SKUs preferred only by small segments (termed “preference minorities” by Choi and Bell 2011), that are less likely to be stocked by offline stores.

Offline and online breadth can also be aggregated by combining traffic. The issue with traffic, of course, is that some of the same consumers who visit stores also visit websites. So the union of the offline and online traffic, which does not count the same visitor twice, would work. Of course, that requires information on the traffic that is common to both, and again, it is well worth the effort. It will comprise showroomers, webroomers, or multichannel shoppers, and, the larger the overlap among channels the more the need for an omni-channel strategy.

Another aspect of integration is the use of mobile, with its geographical location base. Marketers need to help consumers locate and access both brick-and-mortar as well as online outlets and mobile has expanded both capabilities. Mobile is particularly capable of complementing brick and mortar channels and is revitalizing the relevance of numeric distribution, density, and distance. Location based messages and maps can increase findability of a store as well as a specific shelf or product in the store. But, both suppliers and retailers can also use mobile to

guide the consumer to a website or a product page online based on a description, a scanned barcode, or a photo.

Measuring What Happens In the Store: Metrics for Distribution Depth

Outlet findability is just the first step. What is equally, if not more, important for the supplier is how well the outlets (physical or online) present the brand—that is, their depth of distribution. Fig. 4 presents some important metrics for monitoring distribution depth. As with distribution breadth, we organize the metrics under the three questions about depth that we introduced in Fig. 1: “how much,” “how prominently merchandised,” and “how well-supported along path-to-purchase”.

Total Distribution Combines Breadth and Depth

The first metric is “Total SKU Distribution”, which adds the ACV- or PCV-weighted distribution of each individual SKU across all the SKUs of the brand. It is basically the (weighted) number of SKUs of the brand that are in distribution, and combines both breadth and depth. A variant of it is the (weighted) % of total category SKUs in distribution that belong to the brand (Datta, Ailawadi, and van Heerde 2016). As Fig. 5 illustrates, the total distribution of major brands has a lot more variation than %ACV and %PCV and is therefore a more diagnostic metric for such brands.

Depth Metrics Are Measured Only in Stocking Outlets

The remaining depth metrics all reflect how prominent the brand is in the stocking outlets relative to competing brands. Having a greater share of shelf, SKUs, or both, or more frequent or more visible promotions in the store will influence consumer choices at the point-of-purchase, be it online or in a physical store. One might think that, with no constraints on physical shelf

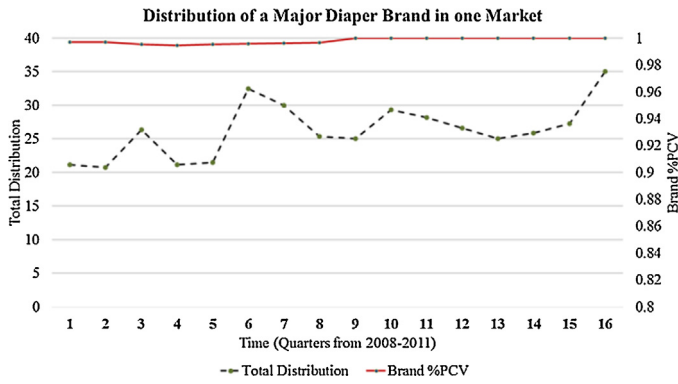


Fig. 5. Total distribution and brand %PCV.

space, the number of SKUs that can be stocked is, for all practical purposes, limitless. The long tail of products available online certainly supports that. And ensuring the prominence of a brand’s SKUs on a website is just as critical online, especially on mobile, as it is offline, perhaps even more so. Product thumbnails that are “below the fold” on the landing page or, even worse, several pages deep on the website, lose sales to more visibly situated rival offerings. No wonder apps offer (temporary) exclusivity to one or the other app store in exchange for premium placement on their home page or feature lists (Sherr and Wakabayashi 2014), and hotels pay significantly higher commissions on Expedia’s Accelerator Program to get higher placement on the online travel agent’s listings.

Product listing ads (PLAs) are a form of “display” on the SERP with limited space, just enough room to offer a special price. If competitors dominate the PLAs displayed when consumers search for the category or for your brand, sales will surely suffer. On the other hand, a brand with a performance or prestige image may be happy to not be discounted on PLAs.

Fig. 6 shows some of these online depth metrics for the same 11 running-shoe brands as in Fig. 3. As one might expect, there

is less variation across the major brands in longer-term metrics (e.g., percentage of outlets in organic and sponsored search results with the brand on the landing page) than in temporary promotional ones (e.g., % of PLAs from outlets that have the brand on the landing page or mention the brand in the ad). It shows the difference in promotional depth between the heavily promoted Nike and New Balance brands and a brand like Brooks that works hard not to be heavily discounted.

As consumers look for more convenience and ease of transactions online, and especially on mobile, whether a brand is on the stocking site’s landing page, the number of clicks it takes to get to it, whether it has Buy button next to it, and whether it has a Dash button on Amazon or can be ordered by Alexa (Amazon’s equivalent of Apple’s Siri, accessed via its Echo devices), are all metrics for distribution depth that are becoming more and more important. But, mobile’s location-based abilities are being harnessed to also improve distribution depth offline, from in-store offers to assistance in finding products in the store to offers sent when a consumer is within a specified geographical radius of one’s own outlet or a competitor’s outlet (referred to as geo-fencing and geo-conquesting respectively; see for example, Dubé et al. 2016 and Fong, Fang, and Luo 2015).

What Are You Managing Toward: Distribution Performance Metrics

We now discuss the performance metrics that marketers, both up- and downstream, should monitor to make sure distribution is being managed well and sustainably. Our interest here is not in a supplier or retailer’s performance in general but specifically in performance metrics related to the distribution of a supplier’s brands by a retailer: those that measure how well the supplier and its brand(s) perform for the retailer and how well the retailer performs for the supplier and its brand(s). Monitoring these metrics can help assess whether distribution strategy is on the right path and things are getting better instead of worse.

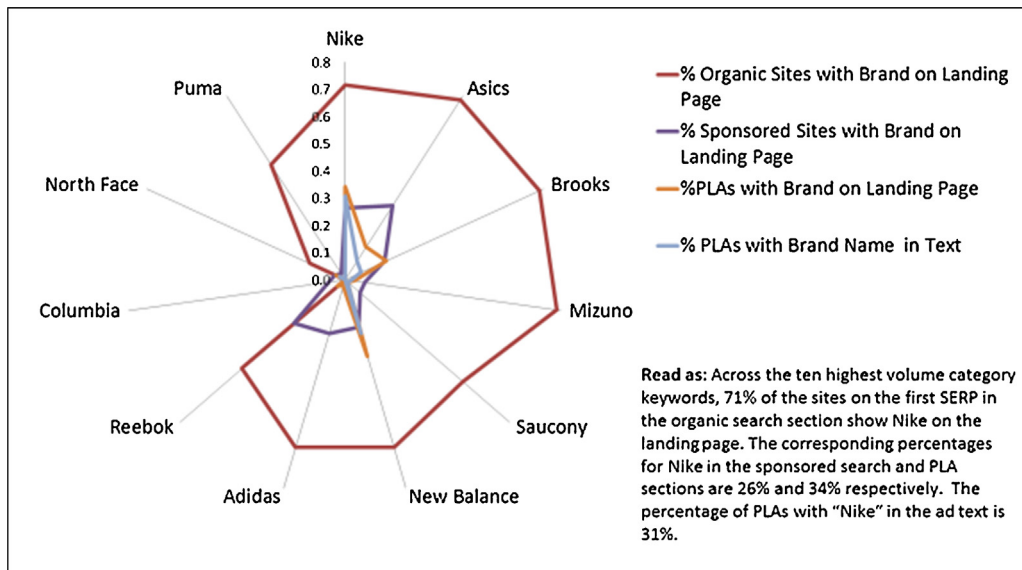


Fig. 6. Online distribution depth for running-shoe brands.

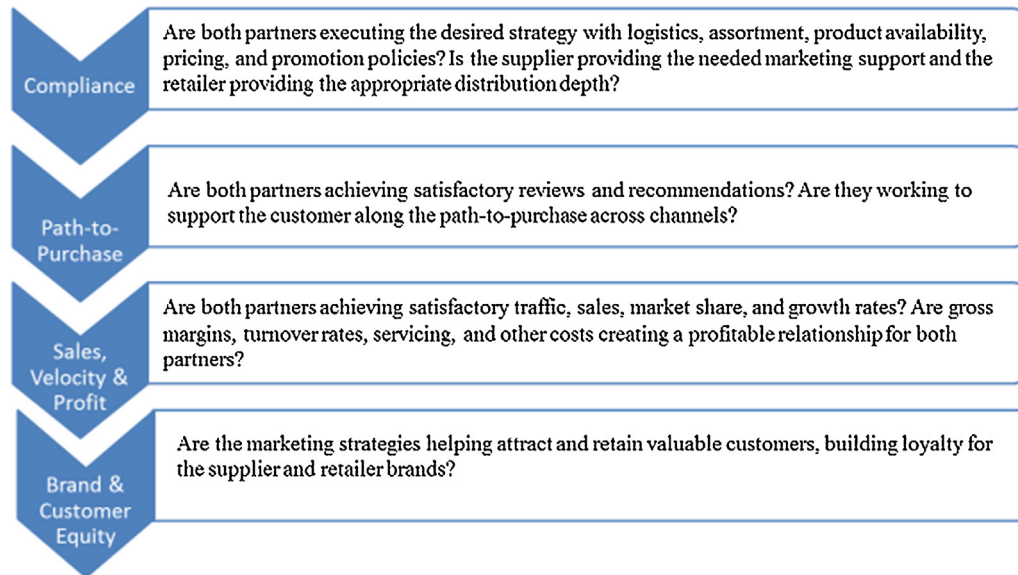


Fig. 7. A hierarchy of performance metrics.

There are a number of such metrics and each is informative in its own way, but it is important to organize them into a sensible hierarchy. One way to think about that organization, summarized in Fig. 7, is to distinguish between metrics that track compliance with the objectives and requirements of the channel partner, and support along the path-to-purchase across channels, those that are oriented toward sales and profitability, and finally those related to longer term brand and customer equity.

We provide a comprehensive list of performance metrics at each level of this hierarchy, and from the perspectives of both parties, in Fig. 8. The figure should serve as a reference for the reader when the need arises, but we highlight some major themes below.

Compliance and Execution Metrics Are a Means to an End

These intermediate metrics can help maintain strategic commitments and diagnose potential problems while they are still manageable. Suppliers, having chosen to partner with particular retailers, want to have the appropriate distribution depth in the retailers' stores or on their websites. They also want to ensure that the funding they provide in allowances, marketing, or logistic support is utilized as intended. So they audit shelf facings, Out-of-Stocks (OOS), and displays, monitor violations of minimum advertised price (MAP) policies, track pass-through of promotional allowances to consumers, and require adequate salesperson training. Although MAP policies have been in use for a long time, we are only just beginning to see research on the patterns of violation of MAP policies by authorized and unauthorized retailers (Israeli, Anderson, and Coughlan 2016).

Trade funding accounts for a very large part of suppliers' marketing budgets, especially in CPG. It is important to track how much of it is passed through to consumers in the form of better prices especially since pass-through rates vary widely across suppliers and retailers (Ailawadi and Harlam 2009; Nijs et al.

2010). Low pass-through may be because the category is not particularly price sensitive, or because promoting the brand does not improve the retailer's category sales, or because the balance of power lies with the retailer who can negotiate higher funds and keep them. But it is also important to track whether trade funds result in special displays or in better in-store merchandising or even in higher retail price maintenance. Those retailer actions may be considered far more desirable by some suppliers (e.g., Apple) than price discounts, especially in non-CPG categories.

OOS events may be because the supplier fails to ship complete orders on time, or retailer inventories and safety stock are too low to supply consumer demand. The best reason for OOS would be consumer demand that exceeds shelf inventories (for example, a promotion might be more successful than forecast), though even that is not a "good problem". A more problematic reason may be that the retailer does not find it worthwhile to push the product and is happy to keep it OOS while shifting sales to other, more profitable ones, in a "bait and switch".

In contrast, excess inventory in the system often leads to too many markdowns or too many unauthorized resellers cropping up, both of which are more common online than ever before. Authorized retailers may have over-ordered, especially if they were offered ill-advised volume discounts, the supplier may not have developed sufficient consumer "pull" through advertising, product quality may be poor, or the product portfolio may be too big with a badly-chosen mix of items. Cutting the price is often the Band-Aid fix, but who funds the price cut and the extent to which goods are returned to the supplier instead of marked down for sale are usually topics for negotiation. Sustained low inventory turns will likely foretell a reduction in shelf facings or even the delisting of an SKU or brand because there are tens more waiting to take its place.

Online and mobile data make it easier to track other useful intermediate metrics. High bounce rates or cart abandonment might suggest that retailers are not presenting the brand as well

How Retailer Performs for Supplier	How Supplier Performs for Retailer	Comments
Compliance and Execution Metrics		
<ul style="list-style-type: none"> Trade Promotion Pass-through (in prices, markdowns, or merchandising) Adherence to Resale Price Maintenance (RPM) or Minimum Advertised Price (MAP) policies 	<ul style="list-style-type: none"> On-time payment of trade funds Number of unauthorized resellers and % of supplier sales through them 	<ul style="list-style-type: none"> Trade funding may be provided to maintain target retail prices or to offer discounts. Unauthorized resellers may be due to poor inventory control or poorly designed promotional incentives that encourage diverting.
<ul style="list-style-type: none"> % On-time reseller deliveries to consumers Incidence of Out of Stock (OOS) Return rate by retailer’s customers Bounce rate and Cart abandonment rate 	<ul style="list-style-type: none"> % On-time supplier shipments to reseller Cost & on-time refunds on unsold inventory Return rate by brand buyers Cart abandonment rate 	<ul style="list-style-type: none"> These can reflect poor performance of either supplier or retailer.
Omni and Cross-Channel Metrics		
<ul style="list-style-type: none"> Advocacy (Number or % of positive brand reviews by retailer’s customers) Cross-Channel Conversions (Number of visitors served by retailer that subsequently buy the brand elsewhere) Cross-Channel Delivery or Returns (Number of purchases elsewhere delivered by, picked up at, or returned to retailer) 	<ul style="list-style-type: none"> Advocacy (Number or % of positive reviews by brand’s buyers) Own-Channel Support (Uniform price maintenance across channels, Exclusive products for retailer’s channel) Cross-Channel Support (Payments by supplier for cross-channel conversions, delivery and returns) 	<ul style="list-style-type: none"> The relevance of these metrics depends on the number and type of channels and the ease of tracking consumers across independent channels. Whether own- or cross-channel support is relevant depends on whether the goal is to discourage or embrace showrooming Current attribution models only study behavior across the marketer’s own online touch-points.
Sales, Velocity, and Profit Metrics		
<ul style="list-style-type: none"> Brand sales (unit & \$) per store and for the total retail account Brand’s share of retailer’s category sales Lift in total brand sales in market when on promotion at retailer 	<ul style="list-style-type: none"> Brand sales (unit & \$) per sq. ft. Lift in total category sales in store when brand is on promotion at retailer 	<ul style="list-style-type: none"> Sq. ft. of warehouse space is relevant for online resellers. There is a large literature on what portion of the immediate promotional sales lift is incremental for the supplier vs. the retailer.
<ul style="list-style-type: none"> Brand velocity (sales per distribution point) 	<ul style="list-style-type: none"> Brand velocity index (brand sales per sq. ft. ÷ category sales per sq. ft.) Brand’s inventory turns (sales ÷ average inventory) 	<ul style="list-style-type: none"> Sales and inventory may be measured in units or \$. \$value of inventory is usually at average acquisition cost.
<ul style="list-style-type: none"> Gross margin (GM) from retailer (unit and % of supplier selling price, net of trade discounts) Total profit from retail account 	<ul style="list-style-type: none"> Gross and net margin from brand (unit & % of retail selling price) per sq. ft. Gross Margin Return on Inventory Investment from brand (GMROI = GM dollars ÷ average \$ value of inventory) Direct Product Profitability (DPP) 	<ul style="list-style-type: none"> GMROI is increasingly important as retailers try to reduce inventory costs to compete in omnichannel. Turn & Earn, a relative of GMROI is % GM x Inventory Turns. DPP requires activity based costing.
Equity Metrics		
<ul style="list-style-type: none"> Total brand sales to retailer’s customers Lifetime value of channel’s and retailer’s customers for supplier 	<ul style="list-style-type: none"> Total sales and profit from brand customers (those who visit the retailer seeking the brand) Lifetime value of brand buyers for retailer 	<ul style="list-style-type: none"> Determining whether customer visited seeking the brand is difficult offline, but worthwhile. Online, those who arrive at a site after searching for a supplier’s branded keyword can be identified.

Fig. 8. Performance metrics to assess the effectiveness of distribution.

as they should, either because they could not be bothered or because they do not have the skills and need help. Or it could be that the brand does not appeal enough to the site’s visitors.

Cross- and Omni-channel Metrics Are Also a Means to an End

The growing capabilities and importance of mobile have accelerated implementation of omnichannel strategies by retailers, and their moves have increased the pressure on suppliers to adopt and adapt by integrating across their channels. Kurt Salmon consultants (Sambar, Goldman, and Scrimale 2015) report on the evolving metrics needed to track these trends and we reproduce some important ones in Fig. 8. A key issue is showrooming, as exemplified by a quote in the same article “...store associates are spending an increasing amount of

their time engaging with consumers who will ultimately purchase in another channel.” Showrooming refers to consumers seeing, feeling, and trying products on in a physical store and buying online, but research shopping online to buy in store, or webrooming, is just as common in some categories (Verhoef, Neslin, and Vroomen 2007).

The question is whether such behavior should be embraced or discouraged. If the goal is to provide the consumer with an omnichannel experience, then it has to be embraced. Companies like LL Bean and Hallmark Retail that sell through multiple company-owned or licensed channels have made a lot of progress by rewarding their online and offline arms for total sales irrespective of where those sales are transacted. But, as we noted earlier, the job is much harder for a supplier who must deal with showrooming and webrooming across separate, independent, retailers. Embracing this means some channel members

must be rewarded for supporting a sale even if they do not close it. Until systems are developed to integrate data across retailers, both online and offline, suppliers can try to estimate the extent to which different channels are used for search versus purchase in different markets using regular consumer surveys, offline distribution data, and market level demographics.⁴ They may then reward retailers who are showroomed or webroomed with additional trade support or funding (which, we might add, has important implications for how we assess promotional pass-through).

But even if the data exist (and they do, for product and services that are distributed primarily through digital channels), many suppliers may prefer to discourage the practice either because they do not want their brands to be priced and presented differently in different channels or because it is simply not practical to reward one retailer for a sales that was transacted at another, independent, retailer. Hence the imposition of MAPs or the distribution of separate brands/product lines in different channels. If prices, at least advertised ones, are the same across channels, or different brands/parts of the product line are sold in each channel, the motivation or ability to engage in showrooming or webrooming decreases.

Overall, both the upstream marketer and the reseller have their own compliance and cross-channel metrics and they are likely to disagree on the reasons why the metrics do not reflect agreed-upon strategies and execution. But, at the very least, they can flag a problem or an opportunity and start the discussion. As long as the parties do not lose sight of the fact that these metrics are not the end, only the means to the end. Managing only toward intermediate metrics, especially when those can diverge even for different groups within one's own organization (sales versus marketing versus operations, for example) let alone for upstream suppliers and resellers, can make the parties lose sight of longer-term goals.

Sales, Share, and Sales Velocity Are Key for Both Parties

Sales and related velocity metrics tend to be preeminent for all parties. Retailers, who generally stock products from several different suppliers and in several different categories, can trade off low sales volume of a particular brand or SKU for high margin (hence the problem of double marginalization), but sales and sales growth are essential for the survival of the supplier, so these metrics trump many others. In their constant quest for matching distribution with demand, suppliers also closely track velocity, that is, sales per PCV or ACV point. And, the brand's share of category sales at a given retailer relative to the retailer's overall share in the market (its Brand Development Index) helps assess how much the retailer emphasizes the brand.

Of course, retailers do not want to waste scarce shelf space on products that do not sell. They always track the sales rate (per week, per square foot, per facing) and almost always use it as

the first thing to check for items to consider dropping from the assortment. In many instances, though, they may be better off tracking not just sales but also margin rates, and paying attention to how profitable the customers are that an item or brand draws to their store. We discuss this more below.

Gross Margins Are a Starting Point for Profit, but Harder to Measure than You Might Think

Gross margin is unquestionably the most important metric for marketers to evaluate pricing and the cornerstone for calculating the contribution to profit. At one time, gross margin might have been relatively simple to calculate: the difference between selling price and cost of goods (manufacturer selling price from the retailer's perspective) expressed as a dollar value or a percentage of selling price. But today, promotions, uncertain pass-through rates, contingent rebates, markdowns, deductions, coupons and rebates with long expiration dates, and free goods are just some of the reasons that calculating gross margins for the thousands of SKUs in a typical retail operation is hard.

Gross Margin Return on Inventory Investment (GMROII, which is defined as Gross Margin GM dollars divided by the average dollar value of inventory) is a particularly relevant metric for resellers to manage their assortments because it combines inventory turns and gross margin. Inventory is one of retailers' highest costs and managing it has never been more important as traditional retailers compete with online masters of logistics like Amazon (Ziobro 2016).

DPP, Category Profit, and Customer Profit Are Important for Retailers While Suppliers Track Retail Accounts

Because retailers incur many other costs on the items they sell than just the price they pay to the supplier, and because those costs can vary widely, gross margins, even GMROII, do not tell enough of the story. Direct Product Profit (DPP) subtracts from an item's net selling price all the costs associated with it—from inventory carrying to stocking to shelf space to energy to checkout or delivery to returns—that can reasonably be attributable and allocated to specific categories and items (see Borin and Farris 1990 for a practical way to estimate DPP). Activity-based costing (ABC) is the key to ensuring that allocations reflect opportunity costs and are not arbitrarily spreading overhead. If done right, DPP can distinguish between items with the same gross margin but very different net profitability for the retailer. Because it is a dollar metric (of course, it also can be expressed as a ratio to sales), DPP can also differentiate among items that have low and high sales rates—for example, in comparisons of DPP per week.⁵ It is worth noting the importance of delivery and return costs here, which traditionally did not fig-

⁴ For instance, Bell (2015) notes, consumers in markets with more outlets and product variety are more likely to search for information online whereas those in areas with fewer or more distant offline options are more likely to buy online.

⁵ The tension between dollar and percentage metrics, or, more generally, absolute and ratio metrics is worth underscoring. Some of this tension is a result of firms focusing on size and growth as well as efficiency. Dollars better reflect size and growth (e.g., sales revenue, total margin) and percentages better reflect efficiency (e.g., margin as a percentage of sales or inventory). Both are important to track especially since percentage margins can sometimes look quite attractive

ure in DPP calculations but can destroy profitability, especially of smaller retailers in today's ecosystem (Stevens 2016). These costs are substantial overall but also vary a lot across categories and across items in a category. Shipping a fragile or heavy glass container or a product in a special ice pack can quickly eat up otherwise hefty gross margins (Nassauer 2015).

Although the sales rates, gross margins, and DPP of individual items and brands are important, retailers are at least as interested (and likely more) in the performance of the whole category as in the individual brands. But what happens in one category also affects sales of other categories in the store, and retailers have specific strategic roles for different categories (Dhar, Hoch, and Kumar 2001). Some are traffic builders, others are destination categories that attract regular shopping trips and longer-term store loyalty, and still others may be retailer image builders. Depending on the role of the category for the retailer, item and even category profitability may be more or less important, depending on the profitability of the customers they attract.

Which brings us to customer lifetime value (CLV, e.g., Venkatesan and Kumar 2004). Many service providers, especially those that operate in contractual settings, as well as B-to-B marketers, habitually compute and use CLV. That is not the case with consumer product manufacturers, whose millions of customers primarily buy from retailers, not directly from them. However, retailers collect customer-transaction data from their loyalty programs over time. Those retailers that actually analyze their data instead of just using them as a means to deliver discounts and rewards have a better understanding of the value of individual customers. They can assess the performance of the brands they sell based not just on their sales and profitability but on their ability to attract more valuable customers (see Verhoef et al. 2010 for a good review).

Almost two decades ago, Chen, Hess, and Wilcox (1999) coined the term "marketing profits" in discussing how a retailer should think about the profitability of different categories. They argued that, to assess how profitable a category is, a retailer should think about not just the category margin, or even DPP, but about how profitable the consumers who choose the store because of the category are to the retailer. Although the term "marketing profits" did not catch on, the notion of assessing the profitability of a promotion, or a brand, or a category by the profitability of the consumers it draws has caught on (Leone et al. 2006). Toward this end, retailers are using "market basket analysis" to dig deeper into the components of customer relationships, and identify brands and even individual items that attract the most valuable customers. And suppliers are looking at similar data to try to find evidence that the consumers who buy their brands are worth more to retailers than the direct retail margins of those brands reflect.

Suppliers incur a lot of different costs in getting their products to the reseller's shelf, so accounting for and allocating all those costs is just as important for them as it is for resellers. However,

it is fair to say that there is likely to be much more variation in their costs and profitability across different retailers and channels than there is across different items of a brand. That is why it is not often that we hear about suppliers measuring DPP, but it is commonplace for them to generate account-specific Profit & Loss statements for each retailer. These can be an effective tool in negotiating assortments, pricing, plan-o-grams, marketing support, and promotion plans. Finally, the types of consumers who patronize different retailers can vary in their fit with a supplier's brands and therefore their value to the supplier. So, it also makes sense for suppliers to try to monitor the average lifetime value of consumers from each retail account.

Research Directions

The comprehensive set of metrics for monitoring multi- and omni-channel distribution that we have laid out thus far are arguably more important for marketers than for academics. However, the reason they are important to marketers is because they reflect how well or how poorly distribution is being managed and that is a topic of very direct importance to academic research, if that academic research wants to be relevant to practice. In this section, we highlight some issues that are critical for multi- and omni-channel marketers, and suggest some research opportunities that we hope will stimulate new work. Of course, it is easy to suggest avenues for empirical research but if data are not available to researchers, the suggestions can not have much impact. The good thing about online distribution is that it makes it possible for researchers to compile data on metrics that were much more difficult to access in the offline space. And it also makes it much easier to test the implications of academic models in the field, as more and more marketers are implementing A-B testing as well as more sophisticated field experiments.

How Much Distribution Breadth Should a Brand Have?

While academic research has offered up a large and rich body of insights on channel design and governance, it has had much less guidance to offer on how a firm should go about determining the right amount and type of breadth for its product line. Beyond the rather general guidance that distribution breadth should progress from exclusive to selective to intensive depending upon whether the product to be distributed is a specialty, shopping, or convenience good (Copeland 1932), there is very little to fall back on in the literature. Frazier and Lassar (1996) provide a descriptive framework for when individual brands may use more or less intensive distribution, focusing on variables like the brand's quality positioning or the narrowness of its target market. Most of the other work on distribution breadth basically estimates distribution elasticity which may help marketers predict the sales effects of expanding or contracting their distribution breadth from existing levels. One example is the work by Ataman, Mela, and van Heerde (2008), who show that distribution breadth is one of the most important marketing mix variables determining the success of new CPG products, though it is the most under-represented in marketing mix models (see also Hanssens 2015). Another is the research by Bucklin, Siddarth,

when dollar margins are not—as in the case of retail margins on private label brands (Ailawadi and Harlam 2004).

and Silva-Risso (2008) who measure distribution breadth elasticities in the automobile industry.

However, the effect of distribution breadth on sales or share is not easy to estimate because it is usually not an exogenous variable determined solely by the supplier. The cross-sectional association between %ACV or %PCV distribution and market share, both at the brand and the SKU levels, is convex (Farris, Olver, and deKluyver 1989; Reibstein and Farris 1995; Wilbur and Farris 2014). As Wilbur and Farris (2014) discuss, the distribution-market share curve for a category can help a brand identify a sustainable level of distribution given market share goals.

But, as these papers clearly state, the cross-sectional association it is not causal—distribution breadth is a cause and an effect of market share and it is affected by the supplier's advertising and other pull efforts. A model that explicitly captures at least the most important feedback effects between distribution breadth and sales or share would go a long way in quantifying our conceptual understanding of how distribution works and help marketers better locate their "Goldilocks" levels of distribution breadth. Ataman, Mela, and van Heerde (2008) and Ataman, van Heerde, and Mela (2010) offer a great start with their effort to account for the bi-directional distribution–sales relationship.

In doing so, it is important to recognize that the elasticity of distribution breadth can vary widely depending on the metric used even within the same types of product markets. For instance, brand ACV and PCV elasticities will generally be larger than total distribution elasticities (Datta, Ailawadi, and van Heerde 2016) because an increase in total distribution often increases the number of SKUs on the shelf, some of the sales of which are taken from existing SKUs of the brand. On the other hand, an increase in PCV adds stores that previously did not stock any SKUs of the brand, and therefore more incremental sales. The only research we are aware of that examines multiple measures of distribution breadth and clearly lays out the differences between them is Bucklin, Siddarth, and Silva-Risso (2008), who study the impact of distance to the nearest dealer, distance to the tenth nearest dealer, and dealer concentration on consumers' choice of cars.

Finally, studying the level and evolution of online sales of the category and a supplier's brand(s) in different geographical markets with varying offline distribution breadth can help identify the need for additional points of distribution.

How Does Breadth Affect Depth?

While some distribution breadth metrics are accessible at least in the CPG industry, thanks to market research companies like Nielsen, IRI, and GfK who have made scanner data available to academic researchers, information on distribution depth has been much harder to come by in the offline channel. As a result, little is known about distribution depth, apart from measurement of shelf space elasticity which is usually done in an experimental setting (see Eisend 2014 for a recent meta-analysis) and the few studies that estimate the effect of both breadth and depth (Ataman, Mela, and van Heerde 2008) or of total distribution (Datta, Ailawadi, and van Heerde 2016; Slotegraaf, Moorman,

and Inman 2003), which, as we noted earlier, combines breadth and depth.

That too much distribution breadth increases retailer competition and lowers retail prices, margins, and distribution depth is well-known in theory. We refer to reader to Bucklin (1973) for an early discussion; Farris and Albion (1987) for documenting the lower retail margins of high share and heavily advertised brands; Steiner (1993) for a detailed analysis of why there is an inverse relationship between supplier and retailer margins; and Lal and Narasimhan (1996) for a formal analytical model. Two empirical papers that we know of also document the effect of distribution breadth on retail prices and margins, both in the auto industry. Bucklin, Siddarth, and Silva-Risso (2008), cited earlier, found that the shorter the distance to the tenth-closest dealer, which reflects the intensity of competition and therefore the ability of a consumer to comparison shop, the better the deal for the consumer (greater distribution depth!), and the lower the margin the dealer earns. Ozturk, Venkatraman, and Chintagunta (2016) document an increase in retail price due to reduced retail competition in areas where Chrysler closed dealerships during the 2009 auto industry bailout.

However, more systematic research is needed to model the dynamics and disentangle the effects of advertising, distribution breadth and depth and therefore to obtain the sales and share elasticities of each. Such models would come closer to providing guidance on the right level of distribution breadth. Longitudinal data on the distribution breadth and depth metrics online should be easier to compile, thus alleviating the biggest hurdle in empirical models. But researchers also need to figure out how to conceptualize distribution versus search advertising, in traditional marketing mix models as the two have become closely intertwined online. Search advertising expenditures have been analyzed the same way as display and traditional media advertising, although it is recognized that consumers exposed to search advertising are likely to be further along the purchase funnel (Dinner, van Heerde, and Neslin 2014). However, as we have noted, search advertising means increased distribution breadth online for the consumer conducting the search.

The Critical Role of Consumers' Search Loyalty in Managing Distribution

In the offline world, consumer loyalty (be it to a brand or to a retailer) is one of the hardest things to measure. Attitudinal loyalty is all very well but the question was always whether it translated into behavior. And behavioral loyalty was generally measured through repeat rates or share of wallet, but the question was always whether that reflects inertia more than true loyalty. The litmus test of true loyalty is consumers' willingness to search for their preferred product—will they switch stores to find their favorite brand or will they switch brands to shop at their favorite store? Click stream data online allow researchers to measure this "search loyalty" much better than they ever could before. What keywords consumers are searching for (are they using generic keywords or supplier branded keywords or retailer branded keywords?), where they are searching (on a search engine or a meta-search site or a retailer site?), and who is bidding for those

keywords, has important implications for the balance of power between suppliers and retailers and for where a brand needs to be available. Data on the type of keywords being searched for, at least on a search engine like Google, are available, as is information on which websites are bidding on those keywords and how much traffic they get. That opens up opportunities for linking keyword search patterns by different segments of consumers, across different product categories, and in different geographical regions, to how many and which retailers are needed online.

Heterogeneity in Consumers' Reasons for Buying Online

There are different costs and benefits associated with searching and buying in different channels (see for example [Mehra, Kumar, and Raju 2013](#)). Consumers do not buy online only for low prices. Many use that channel for convenience and there are different aspects of convenience—in search, in ordering, and in delivery. Segmenting consumers not just based on their preferences for different channels (e.g., [Neslin and Shankar 2009](#)) but based on the attributes or reasons for those preferences is important. Segmentation schemes that show whether and how the importance of convenience and price based attributes correlates in different segments can give suppliers insight into how they need to control the availability, presentation, and pricing of their brands online. And they can give retailers insight into how they can differentiate to appeal to important segments while controlling costs on aspects that are less important to the segments. As one example, the cost to marketers of providing quick delivery is high and all online shoppers are not looking for instant delivery all of the time. Online marketplace [Jet.com](#), now part of Walmart, was banking on this when it offered lower prices to consumers in return for accepting slower deliveries or bundling their shopping from one seller, or choosing a seller who is located closer to them.

Characterize the Path to Purchase Across Offline and Online Intermediaries

Attribution of a consumer's final purchase to various touch points has received a great deal of attention. Recent work has demonstrated the pitfalls of simple models such as first click or last click and proposed richer and better alternatives. A useful summary is provided by [Kannan, Reinartz, and Verhoef \(2016\)](#) in the introduction to a special section devoted to the topic in *International Journal of Research in Marketing*. However, this work has been done entirely on the online touchpoints, such as display ads, search ads, and e-mail, of a single marketer along the path to a consumer's online purchase. This is understandable because data are usually available only for the online touchpoints that end in a particular online purchase at a particular website.

However, from an omni-channel distribution perspective, what is needed is information on the different intermediaries that a consumer visits on the path to purchase so that one can determine what functions are being performed along the path to purchase by each one and therefore how much they should be supported or rewarded. The ambitions for doing this are probably not (yet) matched by marketers' ability to track the actual

execution of omni-channel strategies. Without that tracking ability, it is difficult to reward the “assists” of one channel to achieving conversions in another. But we think more is feasible than has been done to date. For example, Hilton hotels should determine which segments of travelers visit a meta-search or review site like TripAdvisor, an online travel agent like Expedia, and the hotel's own site, in what order and, where they end up buying. Characterizing segments in this fashion can help them figure out how dependent they are on each type of intermediary, which segments rely entirely on the intermediaries for their search and booking, to what extent the intermediaries act as billboards or showrooms such that travelers compare prices there but book at the brand.com website, and so on. These types of analyses can be done with clickstream data available from vendors such as ComScore, using modeling approaches such as those by [Song et al. \(2016\)](#). We recognize that things get harder for other categories where search and purchase occur across offline and online retailers, and the data may not be easy to obtain. But a combination of observed online behavior and survey based offline data might well provide most of the insight, and that is certainly doable. We refer the reader to [Neslin et al. \(2014\)](#) for a useful framework laying out some of these problems and research directions. Of course, a big challenge is that a channel member would be happy to be recognized and rewarded for purchases that it supported along the path-to-purchase but that were transacted elsewhere. But, it would be less happy to have to share its own transaction revenue with another channel member that claims to have helped it along the path to purchase.

Another implication of this cross-channel behavior for managing distribution is relevant in the context of closing offline stores—which is unfortunately happening all the time these days (e.g., [Kapner 2016](#)). Although retailers often close the stores that do not perform well by offline metrics such as sales or profit per square foot or year-on-year changes in sales or profit, such decisions ignore an important role that the offline stores may play in building online sales for suppliers but also for the retailers themselves. Store closings are useful quasi-natural experiments that can be used to study how offline influences offline. Although several researchers have studied the impact of an offline business opening an online channel or vice versa (e.g., [Biyalogorsky and Naik 2003](#); [Deleersnyder et al. 2002](#); [Pauwels and Neslin 2015](#) to name just a few), we are pointing to a different issue. There is a need to understand what happens to online sales of brands in various product categories in the vicinity of a closed offline outlet. Such analysis will provide insight on the role that offline retailers play in supporting online sales and therefore the extent to which they should be supported and rewarded.⁶ Closing stores may interrupt cross-channel shopping and returns, exerting unanticipated effects on online sales, frustrating omni-channel coordination of customer retention, basket size, share of wallet, and CLV. Overall, there is an important need for research

⁶ [Konus et al. \(2014\)](#) Konus, Neslin, and Verhoef (2014) come closest to this with their analysis of how closing a catalog channel affects a multi-channel retailer, but they study impact on the retailer, not on the suppliers whose products are distributed in independent offline and online channels.

on how offline and online distribution interact with each other and how they should be optimally integrated and balanced.

Study the Impact When Suppliers Add New Channels

As suppliers from CPG to durables to entertainment move to add new channels, generally online ones, it is important to examine the impact of such policy moves on prices, revenues, and profits both upstream and downstream. It is also important to study the interaction effects between online and offline distribution and how they should be optimally balanced. This is different from the impact on a supplier's outcomes of increasing distribution breadth within a channel and it is also different from the impact on a retailer's outcomes of adding or removing a catalog, phone, offline, or online channel. We have discussed both of those above.

We highlight three papers that take very different approaches in three very different industries and underscore the importance of more work in this area. [Chu, Chintagunta, and Vilcassim \(2007\)](#) develop an ambitious structural model of a supplier's channel and product line decisions in the personal computer industry, the counterfactuals from which provide insight into what will happen if a channel is added or dropped or if a part of the product line is taken away or added to a given channel. But, for tractability, they assume a simplistic mark-up rule for the downstream independent channel members. [Wlomert and Papies \(2015\)](#) use a creative approach to study the impact of the streaming channel on music industry revenues in existing channels and in total. They build a panel of more than 2500 consumers and follow their music consumption through monthly surveys over a period of one year, spanning months before and after Spotify, the largest music streaming service, entered the market. [Kanuri, Mantrala, and Thorson \(2016\)](#) put together a practical combination of choice-based conjoint data on consumer willingness-to-pay for various newspaper subscription plans, a two-sided market response model estimated from aggregate advertising and subscription data, and an optimization module to help a newspaper determine the menu of plans it should offer to readers that would optimize subscription and advertising revenue.

Metrics, Dashboards, and KISS

In an article on metrics, it is appropriate to conclude with some discussion of how to pull them all together. Management "dashboards" are very fashionable and, indeed, entire companies are now devoted to developing new ways to display data in ways that can give management clear signals. The tension in designing these dashboards is in making them both comprehensive and comprehensible, where comprehensible means more than just fancy digital gauges and traffic lights.

The most common way to spell out the "KISS" acronym is the admonition to "keep it simple, stupid!" But the renowned economist and statistician Arnold Zellner has an alternative interpretation, which is to "keep it sophisticatedly simple." This

is much more in the spirit of Holmes's advice and our own perspective.

"I would not give a fig for the simplicity this side of complexity, but I would give my life for the simplicity on the other side of complexity."—Oliver Wendell Holmes

For practice, it means that management should consider the entire collection of what they *might* measure to manage distribution and make a thoughtful and deliberate decision to focus on a few key metrics. For research, it means that academics need to be cognizant of what the metrics they get data on actually reflect, identify the most critical and the most under-studied links between distribution breadth, depth, and performance, and work on those. We have telegraphed our own preferences through the organization of this article and through the topics we chose to highlight.

Acknowledgment

The authors thank James Weber, President and CEO of Brooks Running, for sharing his experience and insights about Brooks' distribution strategy.

References

- Agrawal, Ashish, Kartik Hosanagar and Michael D. Smith (2011), "Location, Location, Location: An Analysis of Profitability and Position in Online Advertising Markets," *Journal of Marketing Research*, 48 (6), 1057–73.
- Ailawadi, Kusum and Bari Harlam (2004), "An Empirical Analysis of the Determinants of Retail Margins: The Role of Store Brand Share," *Journal of Marketing*, 68 (1), 147–66.
- _____ and _____ (2009), "Retailer Promotion Pass-Through: A Measure, Its Magnitude, and Its Determinants," *Marketing Science*, 28 (4), 782–91.
- Berk, Ataman, Carl F. Mela and Harald J. van Heerde (2008), "Building Brands," *Marketing Science*, 27 (6), 1036–54.
- _____, Harald J. van Heerde and Carl F. Mela (2010), "The Long-term Effect of Marketing Strategy on Brand Sales," *Journal of Marketing Research*, 47 (5), 866–82.
- Bell, David R. (2015), *Location is (Still) Everything*, Amazon Publishing.
- Biyalogorsky, Eyal and Prasad Naik (2003), "Clicks and Mortar: The Effect of Online Activities on Offline Sales," *Marketing Letters*, 14, 21–32.
- Borin, Norm and Paul Farris (1990), "An Empirical Comparison of Direct Product Profit and Existing Measures of SKU Productivity," *Journal of Retailing*, 66 (3), 297–314.
- Bucklin, Louis P. (1973), "A Theory of Channel Control," *Journal of Marketing*, 37 (January), 39–47.
- Bucklin, Randolph, Sivaramakrishnan Siddarth and Jorge Silva-Risso (2008), "Distribution Intensity and New Car Choice," *Journal of Marketing Research*, XLV (August), 473–86.
- Chen, Yuxin, James D. Hess, Ronald T. Wilcox and John Zhang (1999), "Accounting Profits versus Marketing Profits: A Relevant Metric for Category Management," *Marketing Science*, 18 (3), 208–29.
- Choi, Jeonghye and David Bell (2011), "Preference Minorities and the Internet," *Journal of Marketing Research*, XLVIII (August), 670–82.
- Chu, Junhong, Pradeep Chintagunta and Naufel Vilcassim (2007), "Assessing the Economic Value of Distribution Channels: An Application to the Personal Computer Industry," *Journal of Marketing Research*, XLIV (February), 29–41.
- Chu, Kathy and Gillian Wong (2014), "Alibaba Buffs a Key Business Metric," *Wall Street Journal*, (Nov. 9).
- Copeland, Melvin T. (1932), "Relation of Consumer's Buying Habits to Marketing Methods," *Harvard Business Review*, (April), 282–9.

- Datta, Hannes, Ailawadi Kusum and van Heerde Harald (2016), "How Well Does Consumer-Based Brand Equity Align with Sales-Based Brand Equity and Marketing Mix Response?," *Journal of Marketing*, forthcoming.
- Deleersnyder, Barbara, Inge Geyskens, Katrijn Gielens and Marnik G. Dekimpe (2002), "How Cannibalistic is the Internet Channel?," *International Journal of Research in Marketing*, 19 (4), 337–48.
- Dhar, Sanjay, Stephen Hoch and Nanda Kumar (2001), "Effective Category Management Depends on the Role of the Category," *Journal of Retailing*, 77, 165–84.
- Dinner, Isaac, Harald van Heerde and Scott Neslin (2014), "Driving Online and Offline Sales: The Cross-Channel Effects of Traditional, Online Display, and Paid Search Advertising," *Journal of Marketing Research*, LI (October), 527–45.
- _____ and _____ (2015), *Creating Customer Engagement Via Mobile Apps: How App Usage Drives Purchase Behavior*, Tuck School of Business Working Paper No. 2669817, [available at SSRN: <http://dx.doi.org/10.2139/ssrn.2669817>]
- Dubé, Jean-Pierre, Zheng Fang, Nathan M. Fong and Xueming Luo (2016), *Competitive Price Targeting with Smartphone Coupons*, Fox School of Business Research Paper No. 16-002, [available at SSRN: <https://ssrn.com/abstract=2694320>]
- Eisend, Martin (2014), "Shelf Space Elasticity: A Meta-Analysis," *Journal of Retailing*, 90 (2), 168–81.
- Evans, David S. and Richard Schmalensee (2016), *Matchmakers: The New Economics of Multisided Platforms*, Cambridge, MA: Harvard Business Review Press.
- Farris, Paul W., James Olver and Cornelius deKluyver (1989), "The Relationship between Distribution and Market Share," *Marketing Science*, 8 (2), 107–28.
- Farris, Paul W. and Albion Mark (1987), "Manufacturer Advertising and Retail Margins," In *Advances in Marketing and Public Policy*, 1, Bloom P. ed. Greenwich: Conn.: JAI Press.
- Fong, Nathan M., Zheng Fang and Xueming Luo (2015), "Geo-Conquering: Competitive Locational Targeting of Mobile Promotions," *Journal of Marketing Research*, 52 (5), 726–35.
- Frazier, Gary and Walfried Lassar (1996), "Determinants of Distribution Intensity," *Journal of Marketing*, 60 (October (4)), 39–51.
- Ghose, Anindya, Avi Goldfarb and Sang-Pil Han (2012), "How the Mobile Internet is Different? Search Costs and Local Activities," *Management Science*, 1–19.
- Goldfarb, Avi (2013), "The Internet Killed Distance, Mobile Brought it Back," *MIT Technology Review*, 117 (1), 62–3.
- Hanssens, Dominique (2015), *Empirical Generalizations About Marketing Impact*, Second edition Boston, MA: Marketing Science Institute.
- Israeli, Ayelet, Eric Anderson and Anne Coughlan (2016), "Minimum Advertised Pricing: Patterns of Violation in Competitive Retail Markets," *Marketing Science*, 35 (4), 539–64.
- Jeuland, Abel and Steven Shugan (1983), "Managing Channel Profits," *Marketing Science*, 2 (Summer), 239–72.
- Kannan, P.K., Werner Reinartz and Peter Verhoef (2016), "The Path to Purchase and Attribution Modeling: Introduction to Special Section," *International Journal of Research in Marketing*, 33 (3), 449–56.
- Kanuri, Vamsi, Murali Mantrala and Esther Thorson (2016), "Optimizing a Menu of Multi-format Subscription Plans for Advertising-Supported Media Platforms: A Model and Application in the Daily Newspaper Industry," *Journal of Marketing*, (forthcoming).
- Kapner, Suzanne (2016), "Macy's Will Close 100 Additional Stores," *Wall Street Journal*, (August 12), B1.
- Konus, Umut, Scott Neslin and Peter Verhoef (2014), "The Effect of Search Channel Elimination on Purchase Incidence, Order Size and Channel Choice," *International Journal of Research in Marketing*, 31 (1), 49–64.
- Lal, Rajiv and Chakravarthi Narasimhan (1996), "The Inverse Relationship Between Manufacturer and Retailer Margins: A Theory," *Marketing Science*, 15 (2), 132–51.
- Leone, Robert, Vithala Rao, Kevin Keller, Anita Luo, Leigh McAlister and Rajendra Srivastava (2006), "Linking Brand Equity to Customer Equity," *Journal of Service Research*, 9 (2), 125–38.
- Mehra, Amit, Subodha Kumar and Jagmohan S. Raju (2013), "Showrooming' and the Competition between Store and Online Retailers," [available at SSRN: <http://ssrn.com/abstract=2200420> or <http://dx.doi.org/10.2139/ssrn.2200420>]
- Nassauer, Sarah (2015), "Surprise Hot Gift Squeezes Retailers," *Wall Street Journal*, (December).
- Neslin, Scott, et al. (2014), "The Inter-Relationships Between Brand and Channel Choice," *Marketing Letters*, 25, 319–30.
- Neslin, Scott and Venkatesh Shankar (2009), "Key Issues in Multichannel Customer Management: Current Knowledge and Future Directions," *Journal of Interactive Marketing*, 23, 73–81.
- Neslin, Scott, Dhruv Grewal, Robert Leghorn, Venkatesh Shankar, Marije L. Teerling, Jacquelyn Thomas and Peter Verhoef (2006), "Challenges and Opportunities in Multichannel Customer Management," *Journal of Service Research*, 9 (2), 95–112.
- Nijs, Vincent, Kanishka Misra, Eric Anderson, Karsten Hansen and Lakshman Krishnamurthi (2010), "Channel Pass-Through of Trade Promotions," *Marketing Science*, 29 (2), 250–67.
- Ozturk, Cem, Sriram Venkatraman and Pradeep Chintagunta (2016), "Price Reactions to Rivals' Local Channel Exits," *Marketing Science*, 35 (4), 588–604.
- Pauwels, Koen and Scott Neslin (2015), "Building With Bricks and Mortar: The Revenue Impact of Opening Physical Stores in a Multichannel Environment," *Journal of Retailing*, 91 (2), 182–97.
- Reibstein, David and Paul W. Farris (1995), "Market Share and Distribution: A Generalization, a Speculation, and Some Implications," *Marketing Science*, 14 (3) (part 2 of 2) G190-G202.
- Sambar, Al, Dan Goldman and Jessica Scrimale (2015), *Bring Store Performance Into Focus*, Kurt Salmon Associates (August 19), accessed at <http://www.kurtsalmon.com/en-us/Retail/vertical-insight/1380/Bringing-Store-Performance-into-Focus>
- Sayed, Amin, Kinshuk Jerath and Kannan Srinivasan (2014), "Competitive Poaching in Sponsored Search Advertising and its Strategic Impact on Traditional Advertising," *Marketing Science*, 33 (40), 586–608.
- Sherr, Ian and Daisuke Wakabayashi (2014), "Apple, Google: Game of Apps," *Wall Street Journal*, (April 21), B1.
- Slotegraaf, Rebecca J., Christine Moorman and Jeffrey Inman (2003), "The Role of Firm Resources in Returns to Market Deployment," *Journal of Marketing Research*, 40 (3), 295–309.
- Song, Yicheng, Nachiketa Sahoo, Shuba Srinivasan and Chrysanthos Dellarocas (2016), *Uncovering Characteristics Paths to Purchase of Consumers*, Boston University Questrom School of Business Research Paper No. 2619674, [available at SSRN: <http://ssrn.com/abstract=2619674> or <http://dx.doi.org/10.2139/ssrn.2619674>]
- Steiner, Robert L. (1993), "The Inverse Association Between the Margins of Manufacturers and Retailers," *Review of Industrial Organization*, 8, 717–40.
- Stevens, Laura (2016), "Free Shipping Crowds Out Small Retailers," *Wall Street Journal*, (April 27).
- Venkatesan, Rajkumar and V. Kumar (2004), "A Customer Lifetime Value Framework for Customer Selection and Resource Allocation Strategy," *Journal of Marketing*, 68 (4), 106–25.
- Verhoef, Peter C., Rajkumar Venkatesan, Leigh McAlister, Edward C. Malt-house, Manfred Krafft and Shankar Ganesan (2010), "CRM in Data-Rich Multichannel Retailing Environments: A Review and Future Research Directions," *Journal of Retailing*, 24 (2), 121–37.
- Verhoef, Peter C., P.K. Kannan and J. Jeffrey Inman (2015), "From Multi-Channel Retailing to Omni-Channel Retailing: Introduction to the Special Issue on Multi-Channel Retailing," *Journal of Retailing*, 91 (2), 174–81.
- Verhoef, Peter C., Scott A. Neslin and Björn Vroemen (2007), "Multichannel Customer Management: Understanding the Research-Shopper Phenomenon," *International Journal of Research in Marketing*, 24 (2), 129–48.
- Wilbur, Kenneth and Paul W. Farris (2014), "Market Share and Distribution," *Journal of Retailing*, 90 (June (2)), 154–67.
- Wlomert, Nils and Dominik Papies (2015), "One-Demand Streaming Services and Music Industry Revenues: Insights From Spotify's Market Entry," *International Journal of Research in Marketing*, 33 (2), 314–27.
- Ziobro, Paul (2016), "Retailers Embrace Barer Shelves—Home Depot, Others Trim Inventories Amid a Rethink Prompted by Online Shopping," *Wall Street Journal*, (June 28).

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.