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# How Do We Calculate “Velocity”, and How Can It Help You?

A Complete Guide to Using the Velocity Metric to  
Sell High-Performing Products

What exactly is **velocity**, and how is it calculated? This guide will break down the retail measure of performance so you can understand how to calculate it, and how you can use it to make smarter business decisions.



# 1. Velocity: A Brief Introduction

It’s not just *how much* you’re selling; it’s *how fast*. Velocity measures how fast something sells. By capturing store-level data feeds directly from retailers, we’re able to measure **velocity**, which tells you the **rate** at which products are selling to measure performance. And we can report velocity below a national level, so you can monitor sales by retailer, region, or market. Want to know if consumers love what you make? Velocity can tell you. What’s the upside potential of winning wider distribution for a particular item? Velocity can tell you.

Velocity tells you how well your product sells *where it’s available for consumers to purchase*.



## 2. The Formula

Velocity measures sales in the context of *where* a product is selling. Specifically, velocity measures the **total dollar sales** (of an item<sup>1</sup>) divided by **Annual Industry Volume** (in millions) where the product is selling — in other words, the collective annual industry sales of the stores that carry the item/brand/category.

$$\text{Velocity} = \frac{\$ \text{ Sales}}{\text{Annual Industry Volume (AIV) in millions where selling}}$$

Annual Industry Volume (AIV) is also known as weighted distribution — a critical input to weighted velocity. AIV applies relative weighting to different stores, taking into consideration their volume of product sold. This weighting differentiates the impact of selling at smaller, less-trafficked retailers compared to selling at high-volume superstores located in densely populated areas. Low volume stores count less, while high volume stores count more.

It’s also crucial to note that raw Annual Industry Volume (which details specific retailer industry sales) is a highly sensitive piece of information that is hidden for retailer confidentiality. That’s why we aggregate our reporting to at least **market level** and report weighted distribution as a **percentage**.






<sup>1</sup> When we report velocity above item level (category, brand), we also control for assortment differences by dividing sales by average number of items.

### 3. Putting the “Industry” in Annual Industry Volume

Unlike in the packaged goods world, where the relative importance of a store is determined by its total annualized sales, we use the sales for the *specific industry* in which we’re analyzing, such as apparel, small domestic appliances, or toys. In some industries, we calculate AIV at a lower level of the hierarchy, if using the entire industry is still too broad. In consumer electronics for example, we use one of four sub-industries (audio/video, imaging, IT, and telecommunications) when the products within a report fall exclusively into one of these sub-industries.

### 4. An Illustrative Example

It’s easier to grasp each element of our velocity formula in the context of an example. Let’s pretend you’re an electronics manufacturer who makes stereo headphones. You want to know if your new in-ear headphone sells faster than your top competitor’s comparably-priced model in a particular market. Given the information in the below table, what is the velocity of your stereo headphone? What is the velocity of your competitor’s stereo headphone? Which sells faster?

	 Mega Tech World	 Electronics R Us	 Mini Tech Mart	 Audio Video Superstar	 Tech Corner Store	Total
AIV (in \$MMs)	\$500	\$100	\$50	\$300	\$50	\$1000
Your Item’s Sales		\$400		\$1,600	\$400	\$2,400
Competitive Item’s Sales	\$1,200			\$1,200		\$2,400

Below we’ve broken down how to solve this problem, step by step:

#### ONE: Calculate Your Total Dollars Sold

$$\begin{aligned} \text{Total Dollars Sold} &= \$400 + \$1,600 + \$400 \\ &= \mathbf{\$2,400} \end{aligned}$$

#### TWO: Calculate Your Weighted Distribution (aka Annual Industry Volume<sup>2</sup> of stores where product is carried)

$$\begin{aligned} \text{Annual Industry Volume} &= \$100 \text{ million} + \$300 \text{ million} + \$50 \text{ million} \\ &= \mathbf{\$450 \text{ million}} \end{aligned}$$

#### THREE: Calculate Your Velocity

$$\begin{aligned} \text{Velocity} &= \text{Sales} / \text{Annual Industry Volume (AIV) in \$Millions Where Selling} \\ &= \$2,400 / \$450 \\ &= \mathbf{\$5.33} \end{aligned}$$

Your stereo headphone sells \$5.33 per every million dollars of annual industry sales where it’s sold.

<sup>2</sup> This raw AIV number is not releasable, but is shown here for illustrative purposes. It works in the background of the weighted distribution calculation to protect retailer confidentiality. Within Store-Level Enabled Tracking, we release weighted distribution as a percentage of AIV. In this example, your item is selling in \$450 out of the \$1,000 AIV of this market. But you would only see 45 percent as the weighted distribution.

**FOUR: Calculate Competitor’s Total Dollars Sold**

$$\begin{aligned}\text{Total Dollars Sold} &= \$1,200 + \$1,200 \\ &= \mathbf{\$2,400}\end{aligned}$$

**FIVE: Calculate Competitor’s Weighted Distribution**

$$\begin{aligned}\text{Annual Industry Volume} &= \$500 \text{ million} + \$300 \text{ million} \\ &= \mathbf{\$800 \text{ million}}\end{aligned}$$

**SIX: Calculate Competitor’s Velocity**

$$\begin{aligned}\text{Velocity} &= \text{Sales} / \text{Annual Industry Volume (AIV) in \$Millions Where Selling} \\ &= \$2,400 / \$800 \\ &= \mathbf{\$3.00}\end{aligned}$$

Your competition’s stereo headphone does not sell as fast as yours — at \$3 per every million dollars of annual industry sales where it’s sold vs. \$5.33.

## 5. Weighted Distribution: So What?

Why is our weighted distribution metric so important? It’s simply more precise. Velocity defines where a product is selling based on distribution. Therefore, a velocity measure that relies on a distribution measure reflective of the marketplace provides a more relevant metric for performance.

In the example above, had we given equal weighting to all five stores without regard to relative impact, we’d have determined your stereo headphone to have 60 percent distribution (since it’s carried in three out of five stores) and your competition to have 40 percent distribution (since it’s carried in two out of five stores). But this would have ignored the size differences among those stores, and those size differences result in very different sales opportunities. Using the velocity formula, we would have calculated a lower velocity for your headphone (\$2,400/3 stores selling = \$800/store selling) than your competition’s (\$2,400/2 stores selling = \$1,200/store selling) — drawing incorrect conclusions about your product’s success relative to its competition. That’s the importance of calculating velocity using *weighted* distribution.

If your competitor’s stereo headphone is carried in the two biggest tech stores in the market, which sell significantly more tech products each year than the other three stores, this opportunity to sell must be reflected in its distribution. Greater industry sales mean higher foot traffic, more customers, and a greater potential for them to see and buy your product.

In our example, the five retailers collectively sell one billion dollars of products each year. Since your competitor’s product is sold at Mega Tech World (\$500 million in industry sales) and Audio Video Superstore (\$300 million in industry sales), it achieves an 80 percent distribution rate. Your item, on the other hand, is only carried at one larger retailer and two smaller retailers — achieving 45 percent distribution. If your product sells the same amount of product in lower-volume stores — your product turns at a faster rate.

## 6. Weighted Velocity: The 5-Percent Rule

We only pay attention to fast-turning, high-velocity products if they have a high enough distribution, so that performance is representative and repeatable. The risk of reporting velocity for a low-distribution item is that its performance does not necessarily represent how it would perform with expanded distribution.

For example, say someone desperately needed gifts for all the employees at a work event and bought out your headphone supply at the Tech Corner Store in one night. The data would show your headphones turning at record speed at that store — but this behavior is an anomaly, not indicative of future behavior across the market. Only if it occurred at a solid base of stores, by many people across the market, would it be worth homing in on. So as a rule, you should only consider velocity when distribution is high enough (5 percent) to protect against drawing incorrect conclusions.

This 5-percent rule can present a sizable problem if using a velocity measure based on unweighted distribution. That’s because distribution on an unweighted basis can sometimes be so low that a product doesn’t achieve the required 5 percent threshold necessary for consideration, making it seem as if the high-turning performance was some kind of fluke. That’s why we *only offer* the weighted velocity metric; it gives visibility to high-turning products that truly do have noteworthy distribution.

In the case below, Items 9, 21, and 32 would be eliminated from the analysis using unweighted metrics, yet according to weighted metrics they have sufficient distribution and are among the top 10 fastest-turning brands in the category.

	Weighted by AIV					Unweighted		
	Dollars	Dollar Share	Distribution	Velocity	Rank	Distribution	Velocity	Rank
Item 1	\$55,954,221	31.9	66	\$966	1	19	\$3,848	1
Item 2	\$32,539,724	18.5	64	\$581	2	15	\$2,752	2
Item 6	\$4,354,739	2.5	17	\$294	3	13	\$435	8
Item 9	\$3,792,798	2.2	25	\$174	4	4	\$1,218	
Item 13	\$2,458,882	1.4	17	\$170	5	6	\$526	5
Item 3	\$7,515,235	4.3	63	\$136	6	15	\$675	3
Item 21	\$1,065,430	0.6	10	\$118	7	0	\$3,235	
Item 32	\$450,098	0.3	5	\$113	8	3	\$212	
Item 4	\$6,120,500	3.5	65	\$107	9	16	\$495	6
Item 5	\$5,484,192	3.1	64	\$98	10	11	\$636	4

■ Higher rank than deserves    ■ Distribution too low to consider velocity

Furthermore, unweighted metrics would have given three of the top 10 fastest-turning items a higher rank than they deserve when considering their true opportunity based on the dollar volume of the stores in which they are selling.

## Final Thoughts: When to Use These Metrics

Velocity allows our clients to understand how fast a particular product, category, or brand is selling. And using a velocity metric that is calculated with appropriately weighted distribution makes for a realistic depiction of product performance.

### **So when should you use this velocity metric?**

- When trying to make the case to expand distribution for a low-share product.
- When deciding which products to prioritize and which to give greater distribution.
- When trying to identify any competitors that might go unnoticed due to low share.
- In industries with large retailer universes where the composition of retailers' stores varies greatly.
- To monitor sales by retailer, region, or market.

For more information on how you can use velocity to make better business decisions, contact your NPD account representative, call 866-444-1411, or email [contactnpd@npd.com](mailto:contactnpd@npd.com).