

# Towards A Simple Door Optimization Method Within Strategic Spaces

An Agile Marketing method for simple determination of optimum number of doors confined within a strategic location focused on fashion brands

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## Introduction

Last week someone threw me an interesting challenge: how many doors is the optimum number of doors inside a strategic retail location, such as an important mall?

For some this question will be nonsense, as you can never have too many customers. But for upscale brands, the question of remaining premium while maximizing sales at the same time can be daunting. Too many doors, and the products lose the exclusivity that usually leads to retailers engaging themselves in costly price wars. Too little doors and your sales might not be the number you expected. There is a direct relationship between space and sales, but the human factor also plays an important role. A door too many and that nervous retailer could decide to drop your brand or decrease your space and purchases, leaving you cold back in square one.

Our argument – my friend and I – revolved around what is the right number. When he haphazardly mentioned a number, I quickly replied just muttering a number wasn't an optimum solution, and that a more precise measure or model was needed. He couldn't predict a model, and thus challenged me to come up with one. Never one to lose an argument, I pointed that although I could not make a mathematical model just now, I knew the answer was an easy one: the right number of doors is such that adding an additional door would not only not increase sales, but the cannibalization of sales among too many retailers would have such effect as to diminish them.

This is not such a wild idea if we consider economic laws of diminishing returns. There comes a point when adding more resources to generate output incrementally starts to return such diminishing increases that it becomes futile. Think of a tomato orchard. I can harvest ten pounds of tomatoes with rudimentary tools. I can but the best from John Deer and probably harvest 15 pounds of tomatoes. I can then invest in the best of fertilizers and probably harvest 18 pounds of tomatoes. As you can see, I gained a 50% increase in output in the first one, and a 20% in the second one. If I now hire the best-known agricultural expert, and yield 19 pounds of tomatoes, that one additional pound might or might not pay the expert's salaries, thus the return is diminishing.

The same can be said for retail doors. If we sell shoes (I do) one retailer inside a mall will sell a lot but probably sales will be lost. Inside a 500+ door mall, one door will never catch all the potential buyers. Two will sell more. Ten will probably sell well. And twenty might sell less, as price wars and competition draw retailers away from your brand and into greener and more exclusive pastures.

This might not apply to all markets. I used to sell mayonnaise. People do not window shop for mayonnaise, they simply buy it out of necessity. We were glad to sell mayonnaise anywhere we could, the more doors, and the more sales. This applies better to fashion items, where nobody would buy Prada if it were sold at \$9.99 in your local department store.

## Beginning the Exercise

Let's begin the exercise.

The first thing to do is thinking in lines of delimiting the strategic space or location. I would like to work on this space as a mall, but it could be an open venue, just as a fashion avenue in your city, or maybe even a

downtown area several blocks wide. The case is a certain number of people visit such places every day. This is usually an average and well-known number. Most malls keep this sort of information handy, and while avenues and neighborhoods might be trickier to measure, it only takes an air hose and some patient to average your local consumer population in key streets to get a good idea (note: I mean those air hoses used to measure traffic in avenues and roads by advertising companies...)

Not everyone buys. For our example, our mall called Bamsil has an average of 100,000 consumers per day, and only 1 out of 15 buy something. In a month that is some 3,000,000 consumers, but only one in fifteen actually shell some cash, dropping the figure to 200,000 buys. Inside a 500+ door mall, that's 400 buys a month per door, or 13 visits per day. That's only one purchase per hour, which is a conservative figure.

$$3,000,000 / 15 = 200,000 \text{ buyers}$$

Now let's break down that figure some more. Of all the buyers, not all of them buy your product. Some will buy other things, and if they do buy your product they might not buy your brand. How can we measure them the potential number of sales? Luckily for us, my marketing manager has the latest data from his favorite marketing trend magazine. The article resumed after extensive research with a well-known consultancy agency that only 9% of disposable income goes to shoe purchases. And he also knows too well his share of market is around 30%. Those two rough numbers are more than enough to start drawing conclusions:

$$200,000 * 9\% = 18,000 \text{ buys of shoes}$$

$$18,000 \text{ shoes} * 30\% \text{ SOM} = 5,400 \text{ shoes per month or } 64,800 \text{ per year}$$

If you follow the mathematics above, fifteen percent of 200,000 buys is exactly 18,000 shoes of all brands being sold. If we then segregate our brands sales by its share of market, in our case thirty percent, we obtain 5,400 shoes sold per month.

How accurate is that number? Our **Bamsil** mall is quite huge. As a matter of fact, it is the biggest mall in the country and it is not surprising it sales so many shoes.

Now that we know in shoe units how much we are supposed to sell, let's see if the number of doors we have actually are enough or not.

Our sales manager collected for us a list of actual retailers who sell shoes. Some are more important than others. For example, the brand's concept store only sells our brand kind of shoes, so we should give this door priority. Some of the other doors are nice folk, and make good customers, some others are incredibly nice folk, but are somewhat disorganized people; they tend to just drop the shoes on the wall, and sometimes forget to pay their accounts on time. If we were to make room for optimum door size and cut down on the number of doors, we would want to test if they are ripe for rationalization or if we need to add new retailers.

All our doors sell shoes by displaying them on the walls. One shoe gets displayed, but they buy them in boxes of twelve pairs. The wall size is directly proportional to shoes sold. The more space, the more shoes; now, some of the high-level executives of the company think too many shoes are synonymous to too many choices and thus confuse the consumer. Since this is more of a social and psychological issue, and not a mathematical one, I leave that solution to the sociologist-marketing crowd. Let's just pretend the more space, the merrier the sales.

Our doors turn their product in different ways, but on average, it turns 6 times a year. Although we sell four collections, retailers never get it right and have to buy in-between. Or maybe they just don't have enough warehouse space. This number is important, but surely the sales reps know better how many times inventory turns in individual doors. Let's peek into our list:

	DOOR	WALL/SKU	TURNS	SALES	MONTHLY
1	Big Concept Shop	180	8	17,280	1,440
2	Large SGR with clutter	75	5	4,500	375
3	Small runner enthusiast	80	6	5,760	480
4	Crazy urban store	150	8	14,400	1,200
5	Run down account	35	6	2,520	210
6	Nice and clean retailer	90	8	8,640	720
7	New retailer unexpected	30	6	2,160	180
8	Little retailer	15	4	720	60
				55,980	4,665

So all our retailers average 4,665 shoes per month, which is below our 5,400 units target. It seems not only do we not have too many doors, but also we might actually be losing sales for not having enough doors!

### Refining the Exercise

Our sales department, learning that they are behind, is quick to propose two new retailers. Both are excellent persons who love the brand and will be delighted to give us space. The excitement is so, both plan on large and attractive 100 SKU walls. Before we allow our sales manager to flood the mall with shoes, we run a small calculus to see if we hit the target.

	DOOR	WALL/SKU	TURNS	SALES	MONTHLY
1	Big Concept Shop	180	8	17,280	1,440
2	Large SGR with clutter	75	5	4,500	375
3	Small runner enthusiast	80	6	5,760	480
4	Crazy urban store	150	8	14,400	1,200
5	Run down account	35	6	2,520	210
6	Nice and clean retailer	90	8	8,640	720
7	New retailer unexpected	30	6	2,160	180
8	Little retailer	15	4	720	60
9	New retailer A	100	6	7,200	600
10	New retailer B	100	6	7,200	600
				70,380	5,865

It seems that now, we have sales over the potential. If the average we expect is 5,400 shoes, the extra 465 shoes will come from somewhere, either stealing away from the competition (yes!) or cannibalizing our own sales in other stores (nay!)

Every time we have a sales number over the expected limit, it's our warning light to sit down to think hard. Sales are elastic, and maybe all that much space will take away from the competitors. Fashion exclusivity and retailers' loyalty is usually not elastic. The moment your Lexus is sold in every dealership, and your company janitor parks one next to yours, you might be thinking of trading back to a Jaguar. Let's not even go into your clients, who will be happy to curse your parents for several generations down the line while they threaten to go to the competition, drop your line, retaliate, or just sell everything and move to the Bahamas.

Cannibalization is a tricky factor to discount. It could be as low as 5% or high as 30%, depending on the number of doors, marketing support to increase pull, disposable income, etc. All these variables could be taken into consideration and calculated in a complex linear equation system utilizing matrices.

We can also take a simpler approach and accept that after the optimum number of sales, adding additional doors just causes "stress". Stress could be cannibalization, loss sales to inelasticity, loss sales to customer retaliation, too much offer for too little demand, etc. We accept this is so because we painfully calculated the optimum number and accepted this as our benchmark.

## Some Dry Theory

General system theory deals with two important concepts. One is entropy and the other is positive feedback. I want to mention this laws as support to my other too-simplistic approach above. It is understandable to think and rationalize that sales increases should be always positive and that no number of doors should result in marginally diminishing returns. It is also comprehensible to rationalize that increasing number of sale equate sustainable business. Enron executives did it all the time...

All systems tend towards entropy, or self-adjustment. A mall sells close to its optimal number of shoes. Even in perfect conditions of economical bonanza, it could only sell a maximum number of shoes. For example, if we make every door a shoe door, and stock the whole mall with shoes, we could only sell the whole stock, no more. In real terms sales growth become stable in growth rates or decrease altogether. I cannot give a better example than the Dow Jones or NASDAQ index. In the dot com era, the NASDAQ went up to four thousand points only to fall back below two thousand when the bubble exploded. This is the type of erratic behavior systems display often, and when they do, they return to their entropy points. In financial terms, analyst would say the market "corrected itself", which is another way of describing self-stabilization or entropy.

Systems with positive feedback usually tend to fail. That is why positive feedback is such a dangerous process in most systems. Negative feedback returning to the system results in the black box correcting its processes. If the next wave of feedback does not return positive, more corrections occur until the process returns to the standard. But accumulation of positive feedback goes unchecked most of the time and the lack of corrections usually throws the system unstable. Examples are numerous, such as the positive feedback of web business that kept investors buying stock in some of the worst business ideas available for the time. Since the feedback was positive no one occurred to check, stop, halt or suspend the buys until the system dropped catastrophically.

Positive feedback is also what makes companies "load" markets until the point of bursting. When the offer far offsets demand, the system is so bloated that what could have meant minor corrections become large periods of discounts and closeouts. The financial loss is thus larger than the perceived incremental sales to be gained. The stress caused to the system degraded the potential results of incremental marginal output until it becomes incremental loss.

## Running a Real Exercise

If we take these last paragraphs to be trued (and although time proven, many do not) then we could assume the additional 465 units will cause stress on the sales of the other retailers. The additional doors will degrade everyone sales, and we can measure that effect.

Let's run three scenarios; our sales manager believes the stress will be no less than 5% but not more than 20%.

DOOR	WALL/SKU	TURNS	SALES	MONTHLY	5% stress	10% stress	20% stress
1 Big Concept Shop	180	8	17,280	1,440	1,368	1,296	1,152
2 Large SGR with clutter	75	5	4,500	375	356	338	300
3 Small runner enthusiast	80	6	5,760	480	456	432	384
4 Crazy urban store	150	8	14,400	1,200	1,140	1,080	960
5 Run down account	35	6	2,520	210	200	189	168
6 Nice and clean retailer	90	8	8,640	720	684	648	576
7 New retailer unexpected	30	6	2,160	180	171	162	144
8 Little retailer	15	4	720	60	57	54	48
9 New retailer A	100	6	7,200	600	570	540	480
10 New retailer B	100	6	7,200	600	570	540	480
			70,380	5,865	5,572	5,279	4,692

Take a look at the scenarios. The first one assumes a very conservative stress number of 5%. Even when no one sells what he or she is supposed to sell, the loss is still small enough as to make the door expansion successful. But if the worst case scenario, a stress level of 20% is so destructive as to make the door expansion bear a measly additional 27 shoes; hardly worth the effort for only a 0.005% increase in sales...

Despite the fact that we have three possible scenarios, we can further quantify this. The outcome of the three is equals to 100% outcome possibility. Each scenario has a different possibility rate, but since any of the

three could become real, the sum of each possible rate is 100%. Thus if we could assume rates of success for each, we could transform the table into a linear equation and calculate the most possible outcome.

The best way to do this is buy utilizing heavy-duty software such as Mathematica. But if we want to keep it simple we could ask our sales department what they think will happen; even if it's only a guess, since the three guesses will add to 100%, we will never be too far from the truth. Our sales team thinks that chances are skewed heavily into the middle scenario, with 50% success rate, while the ends share equal value, of 25%. This is a coward prediction, but since it is the only one we have, we use it.

$$PO_x = (5,572 * 25\%) + (5,279 * 50\%) + (4,692 * 25\%)$$

$$PO_x = 5,205 \text{ shoes}$$

This is a good result. We are still selling more than the 4,665 units, 540 units or 11.5% more. We are also suffering the effect of stress on the total output by 660 units! If on of the doors was planned to sell 600 shoes per month, we loose one store and 10% more. While we plan to sell 1,200 incremental pairs of shoes, we only sold 540 pairs, and caused some additional stress into our customer relations.

What about if we only open one door only? If we are going to loose the new door we might as well not open it in the first place. Our sales manager thinks stress level will be also half of the present scenario.

DOOR	WALL/SKU	URNS	SALES	MONTHLY	2.5% stress	5% stress	10% stress
1 Big Concept Shop	180	8	17,280	1,440	1,404	1,368	1,296
2 Large SGR with clutter	75	5	4,500	375	366	356	338
3 Small runner enthusiast	80	6	5,760	480	468	456	432
4 Crazy urban store	150	8	14,400	1,200	1,170	1,140	1,080
5 Run down account	35	6	2,520	210	205	200	189
6 Nice and clean retailer	90	8	8,640	720	702	684	648
7 New retailer unexpected	30	6	2,160	180	176	171	162
8 Little retailer	15	4	720	60	59	57	54
9 New retailer A	100	6	7,200	600	585	570	540
				63,180	5,265	5,133	5,002
							4,739

If the same assumptions are used for calculating potential outcome for the equation, we have:

$$PO_x = (5,133 * 25\%) + (5,002 * 50\%) + (4,739 * 25\%)$$

$$PO_x = 4,969 \text{ shoes}$$

Well, it's only 4,969 shoes, an incremental of 304 shoes... what happened? For one, the combined sales of all retailers, new and old, is less than our first initial guess of potential sales of 5,400 shoes. Because we accept as a given that below potential market volumes suffer no stress, there might not be a reason to calculate one. It doesn't hurt to check either. If the old retailers still get jealous, it is advantageous to analyze if stress will be a factor determining enough to make the expansion worthwhile (in this case it is).

Can stress on the retail channel become a factor so dangerous as to diminish sales below historical averages? Let's find out. Instead of two additional doors, let's run the exercise with 3 doors.

DOOR	WALL/SKU	URNS	SALES	MONTHLY	7.5% stress	15% stress	30% stress
1 Big Concept Shop	180	8	17,280	1,440	1,332	1,224	1,008
2 Large SGR with clutter	75	5	4,500	375	347	319	263
3 Small runner enthusiast	80	6	5,760	480	444	408	336
4 Crazy urban store	150	8	14,400	1,200	1,110	1,020	840
5 Run down account	35	6	2,520	210	194	179	147
6 Nice and clean retailer	90	8	8,640	720	666	612	504
7 New retailer unexpected	30	6	2,160	180	167	153	126
8 Little retailer	15	4	720	60	56	51	42
9 New retailer A	100	6	7,200	600	555	510	420
10 New retailer B	100	6	7,200	600	555	510	420
11 New retailer C	100	6	7,200	600	555	510	420
				77,580	6,465	5,980	5,495
							4,526

We adjusted the stress level upwards, since an additional three doors on an 8-door channel is sure to bring a mild level of displeasure among some retailers, and rabid retaliation from some of them. If we keep our set of success rates for the scenarios the equation for most likely sale volume is as follows:

$$PO_x = (5,980 * 25\%) + (5,495 * 50\%) + (4,526 * 25\%)$$
$$PO_x = 5,374 \text{ shoes}$$

Let's review our gains:

- We are increasing 3 doors from 8, or a 37,5% increase in doors
- Volume gains from 4,665 shoes to 5,374 shoes, or 709 units, a 15,2% increase
- The stress level on the channel depleted 1,091 units of theoretical sales in the channel, or almost the combined sales of the two first doors
- Even so, the combined sales are incremental and above our initial case

Take a look at the 30% stress column. If the customers really act upon the number of doors (i.e. they are malcontent with the rising competition on the channel) the result on sales is 4,526 units of shoes, or 139 below the original case. That number is a negative gain of (2.9%) because of unchecked expansion.

This methodic approach can be applied to existing spaces by collecting the important data and then assessing if actual sales mimic fixture capacity or if sales differ either up or down. I am willing to bet (although I haven't still worked on a real case) that when the combined sales of retailers stretch beyond the optimum volume for a strategic sales, actual output per door falls short of predicted fixture capacity sales volume because of stress in the channel.

Once we know how much stress level affects sales, we can start to register statistical tables of real life effect levels on door expansions instead of the 2.5% to 5% thresh levels we are using in this whitepaper.

Even if it's only used as an assumption, sales managers and reps can use these simple tools to estimate if opening that n<sup>th</sup> door will do any good, and how much incremental sales are actually gained by simple door/space expansion.

It is necessary to keep an open mind. All our samples proved that space expansion, while causing tremendous stress on the channel and cannibalization effect, never failed to return incremental sales if measured as a whole.

After all, the more you sell, the more you sell, and no mathematical assumption can negate that simple logical statement.