

## **Marketing Impact in the Digital Age**

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### Abstract

Marketing in the digital era allows for high-quality databases about customer purchase behavior to be assembled and analyzed. These data have led to the discovery of replicable patterns in marketing's impact on business performance. I review major lessons learned about quantifiable marketing impact and draw various conclusions for the practice of marketing going forward.

The digital age is living up to its promise of radicalizing the practice of marketing for businesses large and small. Easily available price and product quality comparisons are enhancing the information used by consumers when they make brand choices. New digital advertising media are vastly superior in their ability to target the right customer at the right time. Online retailing is gaining ground on traditional retailing in a number of sectors. Some argue that the most important of digital marketing changes is yet to come, in the form of network-enabled *smart* devices often referred to as the IOT (*Internet of Things*). When that happens, digital marketing will have invaded all four pillars of marketing activity, the so-called *four Ps* (product, price, place and promotion)<sup>1</sup>.

These and other digital marketing actions create a vast array of high-precision data on consumer purchases and the circumstances surrounding these purchases. Some companies and consulting firms have developed a sophisticated ability to *mine* these data for the purpose of improving the effectiveness of their marketing. As a simple example, a consumer whose past behavior indicates a tendency to buy products “on sale” may be a more lucrative target for promotional offers than another consumer who is brand loyal regardless of price point. The power of developing this capability is well illustrated by the rapid growth of online retailer Amazon.com and the corresponding decline in business performance for a number of traditional retailers.

The abundant availability of high-quality marketing data, along with the increased need for executives to demonstrate a positive return on their marketing spending, has led to some remarkable insights about the *quantitative* impact of marketing on business performance. The academic community worldwide has taken the lead on this effort, in fact long before the advent of the digital age<sup>2</sup>, and has delivered a number of *empirical generalizations* – “laws” if you wish - about marketing impact. I will highlight the most fundamental of these generalizations and discuss their extension into the digital age. A more complete review may be found in a Relevant Knowledge publication of the *Marketing Science Institute*<sup>3</sup>.

Quantitative marketing impact assessment is important because, without it, there can be no verifiable connection between marketing investments and business results, so marketing is largely a guessing game. For example, since advertising is costly, an advertiser needs to know by what amount a planned campaign will increase revenue. Then, this additional revenue, multiplied by the brand’s gross profit margin, should exceed the advertising cost in order to realize a positive return. But how should one tackle this, given that different industries have vastly different metrics for business performance? For example, a hotel chain may use a “revenue per

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<sup>1</sup> In what follows I use the term *product* broadly, i.e. a physical product or a service.

<sup>2</sup> The first comprehensive book on quantitative marketing dates back to 1971: Kotler, P. *Marketing Decision Making: A Model Building Approach*. New York: Holt, Rinehart & Winston, 1971.

<sup>3</sup> See Hanssens, D., Editor, *Empirical Generalizations about Marketing Impact*, 2<sup>nd</sup> Edition. Cambridge, MA: Marketing Science Institute, 2015.

available room” metric, a bank may look at newly generated customer assets, an industrial firm may look at contract values, etc.

One powerful answer lies in the use of *percent change* as a focal metric, which by definition removes the problem of different measures for different industries. Economists have long used so-called *elasticity* metrics to quantify, for example, the impact of price or income changes on demand. We do the same thing for the marketing mix, for example an advertising elasticity of 0.12 means that, if you increase advertising spending by 10 percent, your revenue increases by  $0.12 \times 0.1 = 1.2$  percent. Notice that elasticities less than 1 in absolute value imply diminishing returns to marketing, a phenomenon that has long been understood in marketing practice.

Now that we have a comparable metric of marketing effectiveness, let’s review what thousands of studies have revealed about its quantification. Naturally, individual studies may generate different numbers, depending on the specific circumstances of each project. In what follows, I will describe average or *benchmark* results, along with the conditions under which the elasticities are either higher or lower than the benchmark.

Let’s start with *prices*. In competitive markets, the average price elasticity is around -2.6. That is very strong, indicating that consumers are price takers for the most part. However, strong brands benefit from lower up-elasticities (i.e. when a strong brand increases its price, it suffers a smaller decline in volume than when a weaker brand does the same), and higher down-elasticities (i.e. when a strong brand cuts its price, the effects are more dramatic). Furthermore, the digital age makes these price sensitivities a bit stronger, as consumers now find it easier to make price comparisons across brands. The net conclusion is that *price management* becomes one of the most important challenges for marketing executives, as the effects of price changes are major.

A special case of price effects is that of temporary price cuts, i.e. sales promotions. These are known to be even more impactful than regular price changes, with elasticities of -4.0 or higher. Thus offering a 25% temporary price reduction can readily *double* sales volumes ( $4 \times 25\% = 100\%$ ). There is an important caveat, though: these dramatic demand effects are short-lived. In virtually all cases, when product prices return to their pre-promotion levels, so do demand levels. As such, offering price specials should be done carefully, and in an unpredictable fashion, so consumers cannot easily build expectations around the next price promotion and postpone their purchasing accordingly.

Moving to *advertising*, in spite of drastic changes in communications technology, advertising elasticities remain remarkably stable: about 0.1 on average. The strongest differences lie in advertising content, i.e. advertising for new products can have an elasticity of 0.3, whereas the effects for well-established products can be very small, around .01. So, advertising when you have something new to say works a lot better than repeating old news. In addition, advertising for durable products (such as automobiles) is generally more elastic than that for frequently purchased products. These findings continue to hold in the digital age: while the delivery mechanisms (media) have changed, the overall advertising impact on consumer demand has not.

In fact, it is remarkable that, after half a century of technology innovations in advertising, the average relative advertising spend in the US economy has remained the same: around 3 percent of revenue.

On the *product* side, the most important dimension is that of product quality and the ensuing customer satisfaction. This is an area where the internet has made a major difference. Indeed, we can now track and quantify product reviews, as published in various magazines and websites. We have learned that review *valence* has a large sales elasticity, around 0.69. Thus a ten percent improvement in perceived product quality drives up demand by around 7 percent! Even the mere *quantity* of product reviews has a positive demand effect, with elasticity around 0.35. These results demonstrate that the buying public has become much more responsive to objective information about products than about persuasive information.

Last, but not least, we review *distribution effects*, i.e. how available is the product to the consumer? The effect is surprisingly strong, with elasticity ranging from 0.6 to 1.7. Importantly, there is a zone of increasing returns to distribution (i.e. elasticity  $> 1$ ). To explain this, imagine that you are introducing a new frequently purchased product (such as a branded beverage). At low levels of distribution, the product is available only in large supermarkets, where it competes with all other available brands. However, as distribution improves, the product becomes available in smaller stores, where brand choices are more limited, and thus the product faces less competition. Think about the last time you needed a headache remedy just before boarding a flight. How many analgesic brand choices did you have at the little store next to the gate?

Distribution is also undergoing major change in the digital age. Online retailers offer vastly more choices for consumers compared to their brick-and-mortar counterparts. Painters and other artists whose work was viewable only at a local art dealer can now enjoy a global footprint when they list with a digital art store. As such we expect the impact of distribution to remain very strong in the internet era.

In conclusion, the practice of marketing need not be a guessing game anymore. In fact, marketing-savvy companies now quantify their own marketing effects, using proprietary data and so-called market response models to figure out the ideal mix of marketing efforts that will achieve their business objectives in the most profitable way. Much like the discipline of finance has achieved high professional standards as a result of detailed stock-trading databases and mathematical models, the discipline of marketing has entered an era of science and data driven decision making that will enhance marketing productivity, for the benefit of competitors and consumers alike.