



Noteworthy Insights on Market Diffusion

The basic structure of this insight applies across industry boundaries—
whether consumer or industrial, products or services.

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During the development and release of new products and services, moving them into the market is the business of sales and marketing teams. If marketing and sales professionals understand the structure involved in the distribution of these new products and services, they will be able to find leverage points that can help them achieve these goals more effectively.

The Structure of the System

With each new product or service, there is a given number of Potential Adopters—which is known as the market size. The goal of marketing and sales professionals is to turn these Potential Adopters into Adopters, thereby selling more of the product or service (see Fig. 1). The transition between these two groups is identified as the Adoption Rate. Increasing the Adoption Rate turns more Potential Adopters into Adopters, which results in more of the product being sold.

From Figure 1, we can see that this scenario has two feedback loops influencing the Adoption Rate. There is also one feedback loop for each stock—one of which is a reinforcing feedback loop (R1),

while the other is a balancing (B2) feedback loop.

The two feedback loops at work in the system of changing Potential Adopters to Adopters are:

Word of Mouth: This is a reinforcing feedback loop originating from the “stock” of Adopters. The more Adopters, or people who have begun using the product, the more people there are talking about

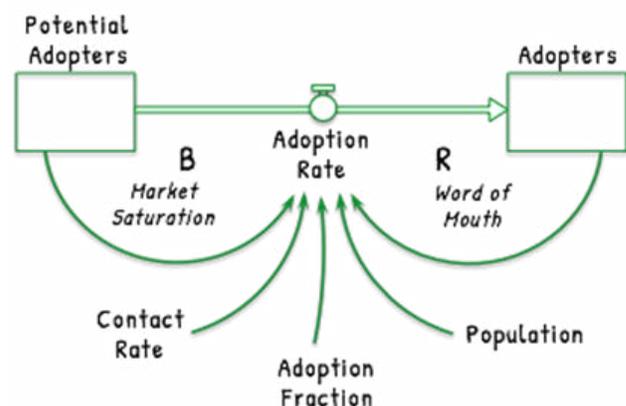


Figure 1: From *Business Dynamics*, p. 325

the product, which will cause additional people to adopt the product. This causes both the Stock of Adopters and the Adoption Rate to grow.

Market Saturation: Market Saturation is a balancing feedback loop that comes naturally from a decreasing number of Potential Adopters—the higher number of Potential Adopters there is, the higher the Adoption Rate will be. However, as the Adoption Rate increases, it decreases the number of Potential Adopters. In this structure the Adoption Rate slows until there are no Potential Adopters left, at which time it goes to zero.

So the Adoption Rate must take into account both of these effects. For this simple structure, it is calculated as follows:

$$\text{Adoption Rate} = \text{Contact Rate} * \text{Adoption Fraction} * \text{Potential Adopters} * (\text{Adopters} / \text{Total Population})$$

In this equation, the variables are defined as:

- **Total Population:** Total Population is the total potential market size. It limits the overall number of Adopters (total sales), because the number of Adopters plus the number of Potential Adopters cannot exceed the Total Population.
- **Contact Rate:** The Contact Rate is the number of contacts between people that happen per day per person on average. These contacts could be physical or could be virtual, by email, by telephone, etc.
- **Adoption Fraction:** The Adoption Fraction is fraction of contacts that lead to an adoption.

This classic structure gives rise to S-shaped growth, as seen in Figure 2, in the number of Adopters, where the Adoption Rate starts at zero, increases quickly then peaks, begins to fall, and then slowly approaches zero again.

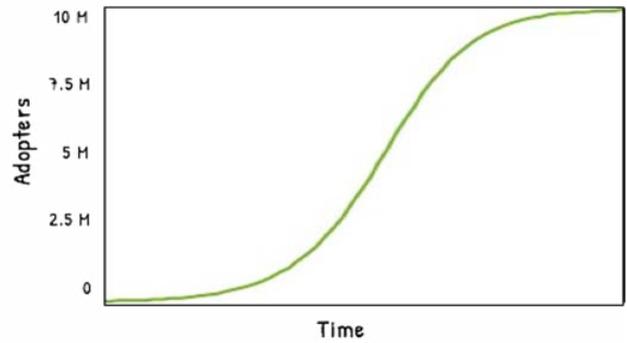


Figure 2

Adding Variables for Clarity:

In addition to the interrelated factors outlined above, understanding the split between the Adoption from Advertising and Adoption from Word of Mouth is important for managing a marketing program. In Figure 3, the additional variables to consider are added to the equation.

- **Adoption from Word of Mouth:** The Adoption from Word of Mouth is the amount of influence the Adopters have on the Adoption Rate—the number of sales-per-unit time that occur as a result of Adopters influencing Potential Adopters.
- **Adoption from Advertising:** Adoption from Advertising is the number of Potential Adopters converted to Adopters as a result of advertising. This rate, as all marketing and sales professionals are aware, is where there is a direct monetary expenditure to influence sales.
- **Advertising Effectiveness:** This is the fraction of the market that is expected to adopt given the advertising spend. A good deal of effort can be spent getting this number.

Systemic Insights

After taking the time to understand the factors and interactions of the Market Diffusion structure, it is possible to gain insight and leverage within the system.



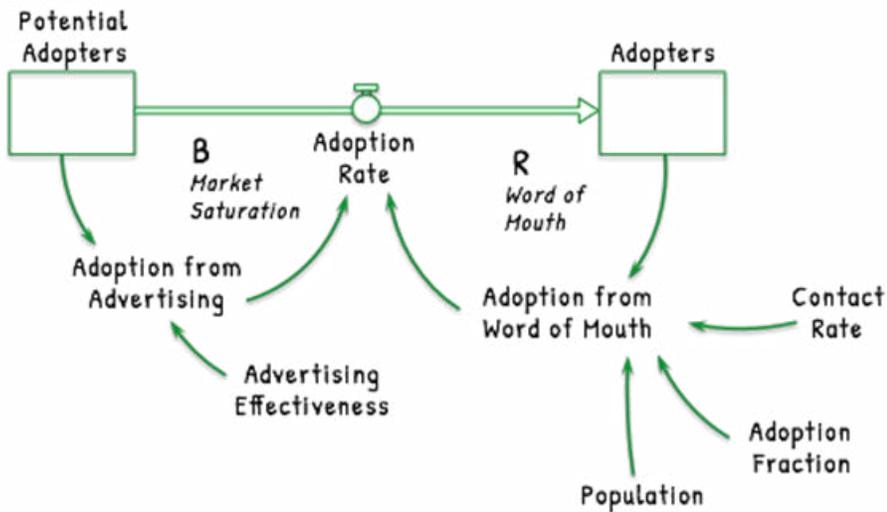


Figure 3

Advertising is often necessary to kick-start the Adoption Rate of a new product, but as the pool of Adopters grows, the Adoption from Word of Mouth overtakes the Adoption from Advertising. Spending money on advertising after this can be wasteful. Understanding the relationship between these two factors can help a company save on an advertising budget and create an achievable Adoption Rate.

3. Manage your limits. Leverage is found in expanding or redefining the potential market.

1. Growth will slow. Expect it.

The Adoption Rate of new products follows an S-shaped pattern.

Products generally have a limited life cycle, where sales rise dramatically, level off for a short time, and then drop off as the market is saturated or is no longer relevant. When this occurs, additional advertising or pressure on the sales force will no longer make a significant difference. Depending on the individual product lifetime, there may be a replacement market, which after the boom will settle out to a lower and constant sales rate.

2. Advertising matters, but mainly in the beginning.

The Market Diffusion system outlined in this piece is fundamentally limited by the pool of Potential Adopters. Redefining the market, by developing a better version of the product or expanding the uses of the product will expand the pool of Potential Adopters, thus creating a system where growth is again possible. Businesses should envision successive S-shaped growth curves for longer-term business planning.

The first step to making change is understanding the factors at play.

Sources:

Sterman, John. *Business Dynamics: Systems Thinking and Modeling for a Complex World*. Boston: Irwin/McGraw-Hill, 2000. p. 323-347

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