

Bass Model

The Bass Diffusion Model on the adoption and diffusion of new products and technologies by Frank M. Bass (A New Product Growth Model for Consumer Durables, 1969, Management Science, 15 , 215-227) and the later extensions of diffusion theory are used for market analysis and demand forecasting of new technologies. The Bass diffusion model is one of the tools to describe, and sometimes predict, the number of purchases for new consumer durable products.

Experience from many innovations shows that the spread of a new method or concept in a market can be characterized by the Bass formula:

$$N(t) = m \cdot \left(\frac{1 - e^{-(p+q) \cdot (t-t_0)}}{1 + \frac{q}{p} e^{-(p+q) \cdot (t-t_0)}} \right)$$

PARAMETERS OF THE BASS DIFFUSION MODEL

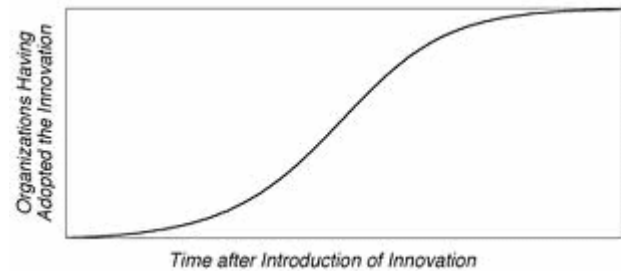
The three parameters of the Bass Diffusion Model to predict N_t (Number of adopters at time t) are:

m = the market potential; the total number of people who will eventually use the product

p = the coefficient of innovation (external influence); the likelihood that somebody who is not yet using the product will start using it because of mass media coverage or other external factors

q = the coefficient of imitation (internal influence); the likelihood that somebody who is not yet using the product will start using it because of "word-of-mouth" or other influence from those already using the product.

See the picture on the right for a typical graphic of the standard bass curve (with the average values of p and q of 0.03 and 0.38, respectively).



USAGE OF THE BASS DIFFUSION MODEL

Bass diffusion theory is simple enough to allow a first assessment. There is no immediate need for further complex modeling. However care must be taken as the standard model is only one of the many models of technology diffusion. Many variations on the Bass Diffusion Model have been developed over time, often claiming further precision or applicability for certain circumstances.

The dynamics of the innovation uptake curves, and how the technology or its application diffuse into the market, is a crucial analytic tool when assessing the business case for internal or external investments in new technologies. For early stage investments or internal business cases for new products, it is essential to have some understanding of the likely diffusion of the technology. By not having a mental model to test against reality, the amount of capital, time to market and the window of opportunity can be grossly misjudged. Diffusion of innovation models are important tools for effectively assessing the merits of investing in technologies that are new or novel and do not have *prima facie*, predictable patterns of user up-take.

DEFINITION BANDWAGON EFFECT

Bandwagon Effect Bias is the tendency to do (or believe) things because many other people do (or believe) the same. It is an example of Cognitive Bias. Without examining the merits of the particular thing, people tend to "follow the crowd." Sometimes this cognitive bias is referred to as the Herd Instinct.

Surely this bias is a strong force behind many financial crises. This human tendency is particularly relevant for investors, leaders of organizations, communication specialists and management consultants.

Benchmarking is a systematic tool that allows a company to determine whether its performance of organizational processes and activities represent the best practices. Benchmarking models are useful to determining how well a business unit, division, organization or corporation is performing compared with other similar organizations. A benchmark is a point of reference for a measurement. The term 'benchmark' presumably originates from the practice of making dimensional height measurements of an object on a workbench using a gradual scale or similar tool, and using the surface of the workbench as the origin for the measurements.

Business benchmarking is related to Kaizen and competitive advantage thinking.

USE OF BENCHMARKING

- Improving communication
- Professionalizing the organization / processes, or for
- Budgetary reasons
- In outsourcing projects

Traditionally, performance measures are compared with previous measures from the same organization at different times. Although this can be a good indication of the speed of improvement within the organization, it could be that although the organization is improving, the competition is improving faster...

FIVE TYPES OF BENCHMARKING

- **Internal benchmarking** (benchmark within a corporation, for example between business units)
- **Competitive benchmarking** (benchmark performance or processes with competitors)
- **Functional benchmarking** (benchmark similar processes within an industry)

- **Generic benchmarking** (comparing operations between unrelated industries)
- **Collaborative benchmarking** (carried out collaboratively by groups of companies (e.g. subsidiaries of a multinational in different countries or an industry organization)).

TYPICAL STEPS IN A BENCHMARKING PROCESS

- Scope definition
- Choose benchmark partner(s)
- Determine measurement methods, units, indicators and data collection method
- Data collection
- Analysis of the discrepancies
- Present the results and discuss implications / improvement areas and goals
- Make improvement plans or new procedures
- Monitor progress and plan ongoing benchmark.

COST OF BENCHMARKING

There are costs to benchmarking, although many companies find that it pays for itself. The three main types of costs are:

Visit costs - This includes hotel rooms, travel costs, meals, a token gift, and lost labour time.

Time costs - Members of the benchmarking team will be investing time in researching problems, finding exceptional companies to study, visits, and implementation. This will take them away from their regular tasks for part of each day so additional staff might be required.

Benchmarking database costs - Organizations that institutionalize benchmarking into their daily procedures find it is useful to create and maintain a database of best practices and the companies associated with each best practice.

LIMITATIONS OF BENCHMARKING

Benchmarking is a tough process that needs a lot of commitment to succeed.

Time-consuming and expensive More than once benchmarking projects end with the 'they are different from us' syndrome or competitive sensitivity prevents the free flow of information that is necessary.

Comparing performances and processes with 'best in class' is important and should ideally be done on a continuous basis (the competition is improving its processes also...).

Is the success of the target company really attributable to the practice that is benchmarked?
Are the companies comparable in strategy, size, model, culture?

What are the downsides of adopting a practice?

WHAT IS THE BOTTOM OF THE PYRAMID? DESCRIPTION

The bottom of the (economic) pyramid consists of the 4 billion people living on less than \$2 per day. For more than 50 years, the World Bank, donor nations, various aid agencies, national governments, and, lately, civil society organizations have all done their best, but they were unable to eradicate poverty.

Aware of this frustrating fact, C.K. Prahalad begins his book: "The Fortune at the Bottom of the Pyramid" with a simple yet revolutionary proposition: If we stop thinking of the poor as victims or as a burden and start recognizing them as resilient and creative entrepreneurs and value-conscious consumers, a whole new world of opportunity will open up.

Prahalad suggests that four billion poor can be the engine of the next round of global trade and prosperity, and can be a source of innovations. Serving the Bottom of the Pyramid customers requires that large firms work collaboratively with civil society organizations and local governments. Furthermore, market development at the Bottom of the Pyramid will also create millions of new entrepreneurs at the grass roots level.

Prahalad presents his new view regarding solving the problem of poverty as a Co-Creation solution towards economic development and social transformation (figure), of which the parties involved are:

- Private enterprises
- Development and aid agencies
- Bottom of the Pyramid consumers
- Bottom of the Pyramid entrepreneurs
- Civil society organizations and local government

12 PRINCIPLES OF INNOVATION FOR BOTTOM OF THE PYRAMID MARKETS

- Prahalad provides the following building blocks for creating products and services for Bottom of the Pyramid markets:
- Focus on (quantum jumps in) price performance.
- Hybrid solutions, blending old and new technology.
- Scalable and transportable operations across countries, cultures and languages.
- Reduced resource intensity: eco-friendly products.
- Radical product redesign from the beginning: marginal changes to existing Western products will not work.
- Build logistical and manufacturing infrastructure.
- Deskill (services) work.
- Educate (semiliterate) customers in product usage.
- Products must work in hostile environments: noise, dust, unsanitary conditions, abuse, electric blackouts, water pollution.
- Adaptable user interface to heterogeneous consumer bases.
- Distribution methods should be designed to reach both highly dispersed rural markets and highly dense urban markets.
- Focus on broad architecture, enabling quick and easy incorporation of new features.

USAGE OF THE BOTTOM OF THE PYRAMID

This framework provides an impetus for a more active involvement of the private sector in building the marketing ecosystems for transforming the Bottom of the Pyramid.

- Helps to reconsider and change long held beliefs, assumptions and ideologies.
- Provides clues on developing products and services for Bottom of the Pyramid consumers.

STRENGTHS OF BOTTOM OF THE PYRAMID THINKING

The biggest strengths of the Bottom of the Pyramid approach by Prahalad is, that it helps to reconsider and change long held beliefs, assumptions, and ideologies, which are all based on and are supporting victim- and burden thinking:

- There is money at the Bottom of the Pyramid: it is a viable market.
- Access to Bottom of the Pyramid markets is not necessarily difficult. Unconventional approaches such as the Avon ladies approach may work.
- The poor are very brand-conscious.
- The Bottom of the Pyramid market has been connected (mobile phones, TV, Internet).
- Bottom of the Pyramid consumers are very much open towards advanced technology.

ASSUMPTIONS OF THE BOTTOM OF THE PYRAMID

The poor cannot participate in the benefits of globalization without an active involvement of the private sector and without access to products and services that represent global quality standards.

The Bottom of the Pyramid market provides a new growth opportunity for the private sector and a forum for innovations. Old and tried solutions cannot create markets at the Bottom of the Pyramid.

Bottom of the Pyramid markets must become an integral part of the work and of the core business of the private sector. Bottom of the Pyramid markets can not merely be left to the realm of Corporate Social Responsibility (CSR) initiatives.