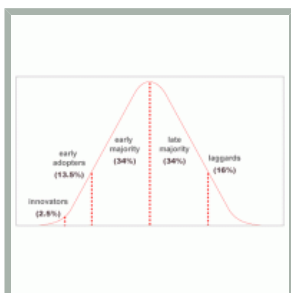


## diffusion of innovations



### characteristics

author:	Rogers, Everett M.
country:	United States
period:	1962
type:	model
role:	consultant, change agent and manager
activity:	analyse, design, plan and reflect
topic:	innovation & risk, marketing & sales and communication
abstr. level:	environment
perspective:	sociopolitical
status:	under review
module:	innovation
comments:	2

### description:

Everett M. Rogers is widely known as the inventor of the "Diffusion of Innovation" theory from his research on how farmers adopt agricultural innovations. After pursuing a degree in agriculture, Rogers earned his PhD in Sociology and Statistics at Iowa State University (1957). His doctorate work stemmed from both his personal interest in understanding why farmers in Iowa, including his father, resisted using such new inventions in their fields as high-yielding hybrid seed corns, chemical fertilizers and weed sprays as well as how such new applications diffuse among farmers over time.

Rogers reviewed the existing studies on diffusion of innovations from educational, medical and marketing domains and found considerable similarities among these different disciplines. His book, *Diffusion of Innovations* (1962), gave him academic fame and still remains the second most cited book title in social sciences today.

Diffusion is defined as the communication process by which a new idea or new product is accepted by the market, while the rate of diffusion is defined as the speed that the new idea spreads from one consumer to the next. Adoption, similar to diffusion, also deals with the psychological decision making processes of the individual, rather than those of an aggregate market.

Rogers showed that a diffusion process in a social system follows an S-Curve in which the adoption of a technology begins with slow change, is followed by rapid change and ends in slow change as the product matures or new technologies emerge. He also held that people adopt new technological innovations at different times and at different rates. He then used the varying rates of adoption to distinguish different phases in the diffusion process allowing practitioners to assess such things as the life of a new product or service and the application of the correct set of marketing activities at the appropriate time.

The adoption process tracked through the diffusion curve is a decision-making process in which an individual passes from the initial knowledge of an innovation to forming an attitude toward the innovation, to a decision to adopt or reject it, then to its implementation and the use of the new idea, and finally to confirmation of this decision.

The cumulative number of adopters follows the above mentioned S-shaped curve. The number of newly 'converted' adopters plotted as a frequency histogram against time follows a bell-shaped Gaussian curve where the number of new adopters rises until halfway the S-curve after which their numbers decrease. To make the model actionable, Rogers introduced 'innovativeness' – the degree to which an individual is relatively earlier in adopting new ideas than other members in a social system. This allowed Rogers to distinguished five groups of adopters as ideal types:

#### 1. INNOVATORS

The first 2.5% of adopters are called "Innovators". Innovators are venturesome and educated, have multiple sources of information and show greater propensity to take risks. They appreciate technology for its own sake and are motivated by the idea of being a change agent in their reference group. They are willing to tolerate initial problems that may accompany new products or services and are willing to make shift solutions to such problems.

#### 2. EARLY ADOPTERS

The next 13.5% of adopters are "Early Adopters". They are the social leaders, popular and educated. They are the visionaries in their market and are looking to adopt and use new technology to achieve a revolutionary breakthrough that will achieve dramatic competitive advantage in their industries. They are attracted by high-risk, high-reward projects and are not very price sensitive because they envision great gains in competitive advantage from adopting a new technology. They typically demand personalized solutions and quick-response, highly qualified sales and support.

#### 3. EARLY MAJORITY

The next 34% of adopters are formed by the "Early Majority". They are deliberate and have many informal social contacts. Rather than looking for revolutionary changes to gain productivity enhancements in their firms, they are motivated by evolutionary changes. They have three principles in the adoption of new technology:

- "When it is time to move, let's move all together". This principle defines why adoption increases so rapidly in the diffusion process and causes a landslide in demand.
- "When we pick a vendor to lead us to the new paradigm, let us all pick the same one". This principle explains which firm will become the market leader.
- "Once the transition starts, the sooner we get it over with, the better". This principle shows why the transition stage occurs rapidly.

#### 4. LATE MAJORITY

The next 34% of adopters are the "Late Majority". They are skeptical, traditional and of lower socio-economic status. They are very price sensitive and require completely preassembled, bulletproof solutions. They are motivated to buy technology just to stay even with the competition and often rely on a single, trusted adviser to help them make sense of technology.

#### 5. LAGGARDS

The last 16% of the adopters consists of "Laggards". Laggards are technology skeptics who want only to maintain the status quo. They tend not to believe that technology can enhance productivity and are likely to block new technology purchases. Roger's model has found wide appeal and application in such disciplines as marketing and management science. The model's most significant application is the Bass Diffusion Model where the process of how new innovations are adopted through the interaction of current and potential users is described mathematically.

**assets:****diffusion of innovations**

ProvenModels • editor PM • version 0.2 • 97 KB

**innovation-decision process**

ProvenModels • editor PM • version 0.2 • 47 KB

**pros:**

- Adoption/Diffusion of Innovations theory underlines the importance of differentiating customer segments. Furthermore, it depicts the need to convince innovators and early adopters to first make an innovation successful. Using innovativeness as variable, Rogers was the first person to group adopters in a scientific and meaningful way.
- The model's ideal types and percentages can be used as a first draft to estimate target groups for communication purposes.
- The model shows patterns of consumer adoption at each of the various stages during a product's life cycle by focusing on different characteristics of each adopter categories in terms of (1) socioeconomic status (2) personality & values and (3) communication behavior.

**cons:**

- Critics of this model concluded that it is an overly simplified representation of a complex reality. Adopters often fall within different categories for different innovations: a current laggard can be an early adopter the next time around.
- The model is not predictive. It does not provide insight in how well a new idea or product will do before it has gone through its adoption curve.
- Customers often adapt technology to their own needs, so the innovation may actually change in usage when moving from the early adopters to the majority of users. The model does not include these kinds of mutations. The lubricant WD-40 is a famous example of such a mutation.
- Disruptive technologies may radically change the diffusion patterns for established technologies by starting a different competing S-curve. The model does not provide pointers how to best manage such transitions.
- Path dependence may lock certain technologies in place that may seriously influence the adoption process and the normal course of the diffusion curve. Innovation is often not a free-standing process, but part of a larger historical setting. An example is the QWERTY PC keyboard whose design originated from 19th century mechanical typewriters. Corporate typing rooms first adopted the PC. To make the transition easier for typists, the keyboard design of mechanical typewriters was copied although one knew that this design from the 1860s was aimed at reducing the number of keystrokes to prevent the typewriter's mechanical hammers from sticking together. A problem that electronic PCs clearly did not have.

**references:**

- A New Product Growth Model for Consumer Durables - Management Science  
<http://mansci.journal.informs.org/>  
Frank M. Bass • 1969 • Institute of Management Sciences • United States
- Background reading on WD-40  
<http://en.wikipedia.org/wiki/WD-40>  
United States
- Crossing the Chasm  
<http://www.amazon.com/gp/product/0887307175?ie=UTF8&tag=provenmodels-20&linkCode=as2&camp=1789&creative=9325&creativeASIN=0887307175>  
Robert M. M. M. and Geoffrey A. Moore • 1991 • HarperCollins • United States • ISBN 0887307175
- Diffusion of Innovations  
<http://www.amazon.com/gp/product/0743222091?ie=UTF8&tag=provenmodels-20&linkCode=as2&camp=1789&creative=9325&creativeASIN=0743222091>  
Everett M. Rogers • 1962 • Free Press • United States • ISBN 0743222091
- Modeling market adoption in Excel with a simplified s-curve  
<http://8020world.com/jcmendez/2007/04/business/modeling-market-adoption-in-excel-with-a-simplified-s-curve/>  
United States
- Sliced bread and other marketing delights (video)  
<http://www.ted.com/index.php/talks/view/id/28>  
Seth Godin • 2003 • TED • United States