

Diffusion of Innovations Theory

Diffusion of innovations is a theory profound by Everett Rogers that seeks to explain how, why, and at what rate new ideas and technology spread. Rogers argues that diffusion is the process by which an innovation is communicated over time among the participants in a social system. For Rogers (2003), adoption is a decision of “full use of an innovation as the best course of action available” and rejection is a decision “not to adopt an innovation”. Rogers defines diffusion as “the process in which an innovation is communicated thorough certain channels over time among the members of a social system” . As expressed in this definition, innovation, communication channels, time, and social system are the four key components of the diffusion of innovations.

Scope and Application

Diffusion research has focused on five areas: (1) the characteristics of an innovation which may influence its adoption; (2) the decision-making process that occurs when individuals consider adopting a new idea, product or practice; (3) the characteristics of individuals that make them likely to adopt an innovation; (4) the consequences for individuals and society of adopting an innovation; and (5) communication channels used in the adoption process.

Four main elements in diffusion of innovation

Rogers proposes that four main elements influence the spread of a new idea: the innovation itself, communication channels, time, and a social system. This process relies heavily on human capital. The innovation must be widely adopted in order to self-sustain. Within the rate of adoption, there is a point at which an innovation reaches critical mass. The information flows through networks. The nature of networks and the roles opinion leaders play in them determine the likelihood that the innovation will be adopted. Innovation diffusion research has attempted to explain the variables that influence how and why users adopt a new information medium, such as the Internet. Opinion leaders exert influence on audience behavior via their personal contact, but additional intermediaries called change agents and gatekeepers are also included in the process of diffusion.

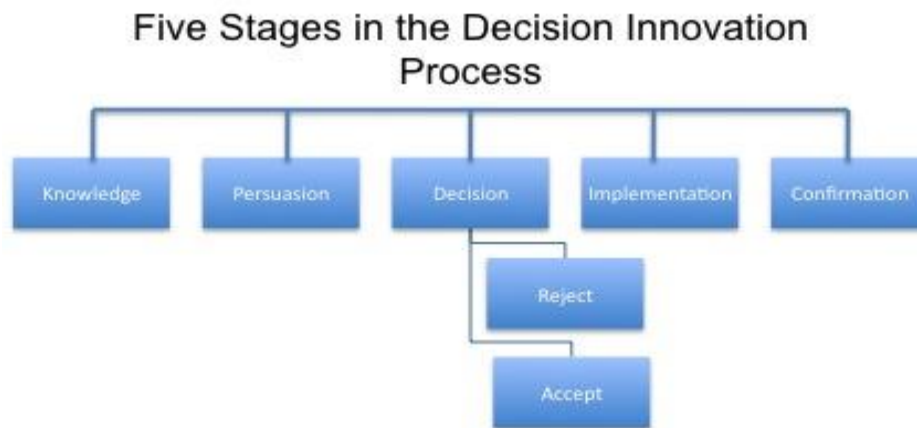
Core Assumptions and Statements

Core: Diffusion research centers on the conditions which increase or decrease the likelihood that a new idea, product, or practice will be adopted by members of a given culture. Diffusion of innovation theory predicts that media as well as interpersonal contacts provide information and influence opinion and judgment.

Statements: Diffusion is the “process by which an innovation is communicated through certain channels over a period of time among the members of a social system”. An innovation is “an idea, practice, or object that is perceived to be new by an individual or other unit of adoption”. “Communication is a process in which participants create and share information with one another to reach a mutual understanding” (Rogers, 1995).

Five-step decision-making process of Diffusion

Diffusion occurs through a five-step decision-making process. It occurs through a series of communication channels over a period of time among the members of a similar social system. Rogers' five stages (steps): awareness, interest, evaluation, trial, and adoption are integral to this theory. An individual might reject an innovation at any time during or after the adoption process.



Five stages of the adoption process

Stage	Definition
Knowledge	The individual is first exposed to an innovation, but lacks information about the innovation. During this stage the individual has not yet been inspired to find out more information about the innovation.
Persuasion	The individual is interested in the innovation and actively seeks related information/details.
Decision	The individual takes the concept of the change and weighs the advantages/disadvantages of using the innovation and decides whether to adopt or reject the innovation. Due to the individualistic nature of this stage, Rogers notes that it is the most difficult stage on which to acquire empirical evidence. ^[11]
Implementation	The individual employs the innovation to a varying degree depending on the situation. During this stage the individual also determines the usefulness of the innovation and may search for further information about it.
Confirmation	The individual finalizes his/her decision to continue using the innovation. This stage is both intrapersonal (may cause <u>cognitive dissonance</u>) and interpersonal, confirmation the group has made the right decision.

Types of Innovation Decisions

Two factors determine what type a particular decision is:

- Whether the decision is made freely and implemented voluntarily
- Who makes the decision.

Based on these considerations, three types of innovation-decisions have been identified.

Type	Definition
Optional Decision	Innovation- made by an individual who is in some way distinguished from others.
Collective Decision	Innovation- made collectively by all participants.
Authority Decision	Innovation- made for the entire social system by individuals in positions of influence or power.

Rate of adoption

The rate of adoption is defined as the relative speed at which participants adopt an innovation. Rate is usually measured by the length of time required for a certain percentage of the members of a social system to adopt an innovation.^[38] The rates of adoption for innovations are determined by an individual's adopter category. In general, individuals who first adopt an innovation require a shorter adoption period (adoption process) when compared to late adopters.

Within the adoption curve at some point the innovation reaches critical mass. This is when the number of individual adopters ensures that the innovation is self-sustaining.

Adoption strategies

Rogers outlines several strategies in order to help an innovation reach this stage, including when an innovation adopted by a highly respected individual within a social network and creating an instinctive desire for a specific innovation. Another strategy includes injecting an innovation into a group of individuals who would readily use said technology, as well as providing positive reactions and benefits for early adopters.

Adopter categories

Rogers defines an adopter category as a classification of individuals within a social system on the basis of innovativeness. Five categories of adopters are innovators, early adopters, early majority, late majority, and laggards.^[2] Diffusion manifests itself in different ways and is highly subject to the type of adopters and innovation-decision process. The criterion for the adopter categorization is innovativeness, defined as the degree to which an individual adopts a new idea.

Adopter category	Definition
Innovators	Innovators are willing to take risks, have the highest social status, have financial liquidity, are social and have closest contact to scientific sources and interaction with other innovators. Their risk tolerance allows them to adopt technologies that may ultimately fail. Financial resources help absorb these failures. ^[40]
<u>Early adopters</u>	These individuals have the highest degree of <u>opinion leadership</u> among the adopter categories. Early adopters have a higher social status, financial liquidity, advanced education and are more socially forward than late adopters. They are more discreet in adoption choices than innovators. They use judicious choice of adoption to help them maintain a central communication position. ^[41]
Early Majority	They adopt an innovation after a varying degree of time that is significantly longer than the innovators and early adopters. Early Majority have above average social status, contact with early adopters and seldom hold positions of <u>opinion leadership</u> in a system (Rogers 1962, p. 283)
Late Majority	They adopt an innovation after the average participant. These individuals approach an innovation with a high degree of skepticism and after the majority of society has adopted the innovation. Late Majority are typically skeptical about an innovation, have below average social status, little financial liquidity, in contact with others in late majority and early majority and little <u>opinion leadership</u> .
Laggards	They are the last to adopt an innovation. Unlike some of the previous categories, individuals in this category show little to no opinion leadership. These individuals typically have an aversion to change-agents. Laggards typically tend to be focused on "traditions", lowest social status, lowest financial liquidity, oldest among adopters, and in contact with only family and close friends.

The role of social systems

Opinion leaders

Not all individuals exert an equal amount of influence over others. In this sense opinion leaders are influential in spreading either positive or negative information about an innovation. Rogers relies on the ideas of Katz & Lazarsfeld and the two-step flow theory in developing his ideas on the influence of opinion leaders.^[52]

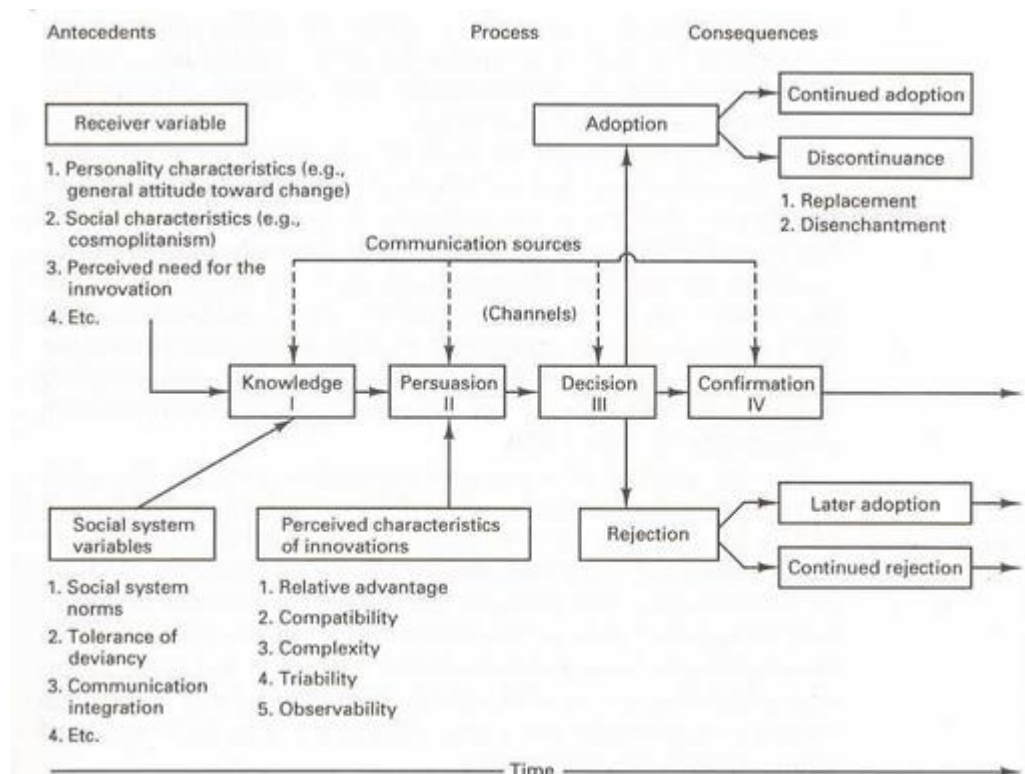
Opinion leaders have the most influence during the evaluation stage of the innovation-decision process and on late adopters.^[53] In addition opinion leaders typically have greater exposure to the mass media, more cosmopolitan, greater contact with change agents, more social experience and exposure, higher socioeconomic status, and are more innovative than others.

Electronic communication social networks

Prior to the introduction of the Internet, it was argued that social networks had a crucial role in the diffusion of innovation particularly tacit knowledge. It was argued that the widespread adoption of computer networks of individuals would lead to much better diffusion of innovations, with greater understanding of their possible shortcomings and the identification of needed innovations that would not have otherwise occurred. Many studies show that particularly in regional and rural areas, significantly more innovation takes place in communities which have stronger inter-personal networks.

Organizations

Innovations are often adopted by organizations through two types of innovation-decisions: collective innovation decisions and authority innovation decisions. The collective decision occurs when adoption is by consensus. The authority decision occurs by adoption among very few individuals with high positions of power within an organization.^[59] Unlike the optional innovation decision process, these decision processes only occur within an organization or hierarchical group. Within an organization certain individuals are termed "champions" who stand behind an innovation and break through opposition. The champion plays a very similar role as the champion used within the efficiency business model Six Sigma. The process contains five stages that are slightly similar to the innovation-decision process that individuals undertake. These stages are: agenda-setting, matching, redefining/restructuring, clarifying and routinizing.



Diffusion of innovation model. (Source: Rogers (1995))