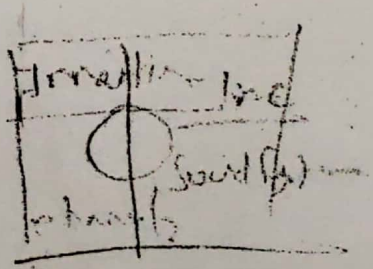
Diffusion of Innovation Theory

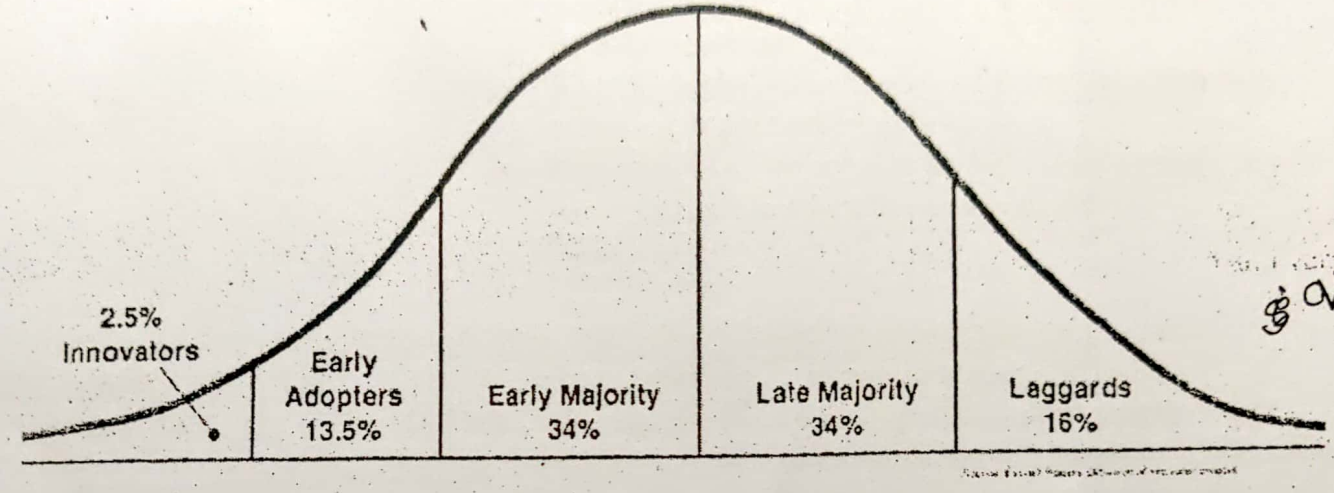
Diffusion of Innovation (DOI) Theory, developed by E.M. Rogers in 1962, is one of the oldest social science theories. It originated in communication to explain how, over time, an idea or product gains momentum and diffuses (or spreads) through a specific population or social system. The end result of this diffusion is that people, as part of a social system, adopt a new idea, behavior, or product. Adoption means that a person does something differently than what they had previously (i.e., purchase or use a new product, acquire and perform a new behavior, etc.). The key to adoption is that the person must perceive the idea, behavior, or product as new or innovative. It is through this that diffusion is possible.

Adoption of a new idea, behavior, or product (i.e., "innovation") does not happen simultaneously in a social system; rather it is a process whereby some people are more apt to adopt the innovation than others. Researchers have found that people who adopt an innovation early have different characteristics than people who adopt an innovation later. When promoting an innovation to a target population, it is important to understand the characteristics of the target population that will help or hinder adoption of the innovation. There are five established adopter categories and while the majority of the general population tends to fall in the middle categories, it is still necessary to understand the characteristics of the target population. When promoting an innovation, there are different strategies used to appeal to the different adopter categories.



1. Innovators - These are people who want to be the first to try the innovation. They are venturesome and interested in new ideas. These people are very willing to take risks, and are often the first to develop new ideas. Very little, if anything, needs to be done to appeal to this population.
2. Early Adopters - These are people who represent opinion leaders. They enjoy leadership roles, and embrace change opportunities. They are already aware of the need to change and so are very comfortable adopting new ideas. Strategies to appeal to this population include how-to manuals and information sheets on implementation. They do not need information to convince them to change. at any time
3. Early Majority - These people are rarely leaders, but they do adopt new ideas before the average person. That said, they typically need to see evidence that the innovation works before they are willing to adopt it. Strategies to appeal to this population include success stories and evidence of the innovation's effectiveness.

4. Late Majority - These people are skeptical of change, and will only adopt an innovation after it has been tried by the majority. Strategies to appeal to this population include information on how many other people have tried the innovation and have adopted it successfully.
5. Laggards - These people are bound by tradition and very conservative. They are very skeptical of change and are the hardest group to bring on board. Strategies to appeal to this population include statistics, fear appeals, and pressure from people in the other adopter groups.



Source: http://blog.leanmonitor.com/early-adopters-allies-launching-product/

The stages by which a person adopts an innovation, and whereby diffusion is accomplished, include awareness of the need for an innovation, decision to adopt (or reject) the innovation, initial use of the innovation to test it, and continued use of the innovation. There are **five main factors that influence adoption of an innovation**, and each of these factors is at play to a different extent in the five adopter categories.

1. Relative Advantage - The degree to which an innovation is seen as better than the idea, program, or product it replaces.
2. Compatibility - How consistent the innovation is with the values, experiences, and needs of the potential adopters.
3. Complexity - How difficult the innovation is to understand and/or use.
4. Triability - The extent to which the innovation can be tested or experimented with before a commitment to adopt is made.
5. Observability - The extent to which the innovation provides tangible results.

Limitations of Diffusion of Innovation Theory

There are several limitations of Diffusion of Innovation Theory, which include the following:

- Much of the evidence for this theory, including the adopter categories, did not originate in public health and it was not developed to explicitly apply to adoption of new behaviors or health innovations.
- It does not foster a participatory approach to adoption of a public health program.
- It works better with adoption of behaviors rather than cessation or prevention of behaviors.
- It doesn't take into account an individual's resources or social support to adopt the new behavior (or innovation).

This theory has been used successfully in many fields including communication, agriculture, public health, criminal justice, social work, and marketing. In public health, Diffusion of Innovation Theory is used to accelerate the adoption of important public health programs that typically aim to change the behavior of a social system. For example, an intervention to address a public health problem is developed, and the intervention is promoted to people in a social system with the goal of adoption (based on Diffusion of Innovation Theory). The most successful adoption of a public health program results from understanding the target population and the factors influencing their rate of adoption.

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Process[edit]

See also: Transtheoretical model § Stages of change

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. Ryan and Gross first identified adoption as a process in 1943.[36] 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. Abrahamson examined this process critically by posing questions such as: How do technically inefficient innovations diffuse and what impedes technically efficient innovations from catching on? Abrahamson makes suggestions for how organizational scientists can more comprehensively evaluate the spread of innovations.[37] In later editions of *Diffusion of Innovation*, Rogers changes his terminology of

the five stages to: knowledge, persuasion, decision, implementation, and confirmation. However, the descriptions of the categories have remained similar throughout the editions.

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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 cognitive dissonance) and interpersonal. confirmation the group has made the right decision.

Technological determinism Technological determinism is a reductionist theory that presumes that a society's technology drives the development of its social structure and cultural values. The term is believed to have been coined by Thorstein Veblen (1857–1929), an American sociologist. The most radical technological determinist in the United States in the twentieth century was most likely Clarence Ayres who was a follower of Thorstein Veblen and John Dewey. William Ogburn was also known for his radical technological determinism. The first major elaboration of technological determinism came from the German philosopher and economist Karl Marx, whose theoretical framework was based upon the idea that changes in technology and productive technology are the primary influence on the organization of social relations, and that social relations and cultural practices ultimately revolve around the technological and economic base of a society. Marx's position has become embedded in contemporary society, where the idea that fastchanging technologies alter human lives is all-pervasive.[1]

Origin The term is believed to have been coined by Thorstein Veblen (1857–1929), an American. Veblen's contemporary, popular historian Charles A. Beard, provided this apt determinist image, "Technology marches in seven-league boots from one ruthless, revolutionary conquest to another, tearing down old factories and industries, flinging up new processes with terrifying rapidity."[2]

Explanation Technological determinism seeks to show technical developments, media, or technology as a whole, as the key mover in history and social change.[3] Most interpretations of technological determinism share two general ideas: that the development of technology itself follows a predictable, traceable path largely beyond cultural or political influence, and that technology in turn has "effects" on societies that are inherent, rather than socially conditioned or produced because that society organizes itself to support and further develop a technology once it has been introduced. Strict adherents to technological determinism do not believe the influence of technology differs based on how much a technology is or can be used. Instead of considering technology as part of a larger spectrum of human activity, technological determinism sees technology as the basis for all human activity. Technological determinism has been summarized as 'The belief in technology as a key governing force in society ...' (Merritt Roe Smith). 'The idea that technological development determines social change ...' (Bruce Bimber). It changes the way people think and how they interact with others and can be described as '...a three-word logical proposition: "Technology determines history"' (Rosalind Williams) . It is, '... the belief that social progress is driven by technological innovation, which in turn follows an "inevitable" course.' (Michael L. Smith). This 'idea of progress' or 'doctrine of progress' is centralised around the idea that social problems can be solved by technological advancement, and this is the way that society

moves forward. Technological determinists believe that "'You can't stop progress', implying that we are unable to control technology" (Lelia Green). This suggests that we are somewhat powerless and society allows technology to drive social changes because, "societies fail to be aware of the alternatives to the values embedded in it [technology]" (Merritt Roe Smith).

Technological determinism has been defined as an approach that identifies technology, or technological advances, as the central causal element in processes of social change (Croteau and Hoynes). As a technology is stabilized, its design tends to dictate users' behaviors, consequently diminishing human agency. This stance however ignores the social and cultural circumstances in which the technology was developed. Sociologist Claude Fischer (1992) characterized the most prominent forms of technological determinism as "billiard ball" approaches, in which technology is seen as an external force introduced into a social situation, producing a series of ricochet effects.[4] Rather than acknowledging that a society or culture interacts with and even shapes the technologies that are used, a technological determinist view holds that "the uses made of technology are largely determined by the structure of the technology itself, that is, that its functions follow from its form" (Neil Postman). However, this is not to be confused with Daniel Chandler's "inevitability thesis", which states that once a technology is introduced into a culture that what follows is the inevitable development of that technology. For example, we could examine why Romance Novels have become so dominant in our society compared to other forms of novels like the Detective or Western novel. We might say that it was because of the invention of the perfect binding system developed by publishers. This was where glue was used instead of the time-consuming and very costly process of binding books by sewing in separate signatures. This meant that these books could be mass-produced for the wider public. We would not be able to have mass literacy without mass production.[clarification needed] This example is closely related to Marshall McLuhan's belief that print helped produce the nation state. This moved society on from an oral culture to a literate culture but also introduced a capitalist society where there was clear class distinction and individualism. As Postman maintains "The printing press, the computer, and television are not therefore simply machines which convey information. They are metaphors through which we conceptualize reality in one way or another. They will classify the world for us, sequence it, frame it, enlarge it, reduce it, argue a case for what it is like. Through these media metaphors, we do not see the world as it is. We see it as our coding systems are. Such is the power of the form of information."[5]

Hard and soft determinism In examining determinism Hard determinism can be contrasted with Soft Determinism. A compatibilist says that it is possible for free will and determinism to exist in the world together while an incompatibilist would say that they can not and there must be one or the other. Those who support determinism can be further divided. Hard determinists would view technology as developing independent from social concerns. They

would say that technology creates a set of powerful forces acting to regulate our social activity and its meaning. According to this view of determinism we organize ourselves to meet the needs of technology and the outcome of this organization is beyond our control or we do not have the freedom to make a choice regarding the outcome (Autonomous Technology). The 20th century French philosopher and social theorist Jacques Ellul could be said to be a hard determinist and proponent of autonomous technique (technology). In his 1954 work The Technological Society, Ellul essentially posits that technology, by virtue of its power through efficiency, determines which social aspects are best suited for its own development through a process of natural selection. A social system's values, morals, philosophy etc. that are most conducive to the advancement of technology allow that social system to enhance its power and spread at the expense of those social systems whose values, morals, philosophy etc. are less promoting of technology. Theodore J. Kaczynski (the Unabomber) can be essentially thought of as a hard determinist. According to Kaczynski, "objective" material factors in the human environment are the principle determining factors in the evolution of social systems. Whereas geography, climate, and other "natural" factors largely determined the parameters of social conditions for most of human history, technology has recently become the dominant objective factor (largely due to forces unleashed by the industrial revolution) and it has been the principle objective and determining factor. Soft Determinism, as the name suggests, is a more passive view of the way technology interacts with socio-political situations. Soft determinists still subscribe to the fact that technology is the guiding force in our evolution, but would maintain that we have a chance to make decisions regarding the outcomes of a situation. This is not to say that free will exists but it is the possibility for us to roll the dice and see what the outcome is. A slightly different variant of soft determinism is the 1922 technology-driven theory of social change proposed by William Fielding Ogburn, in which society must adjust to the consequences of major inventions, but often does so only after a period of cultural lag.

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