SHANNON'S MODEL OF THE COMMUNICATION PROCESS
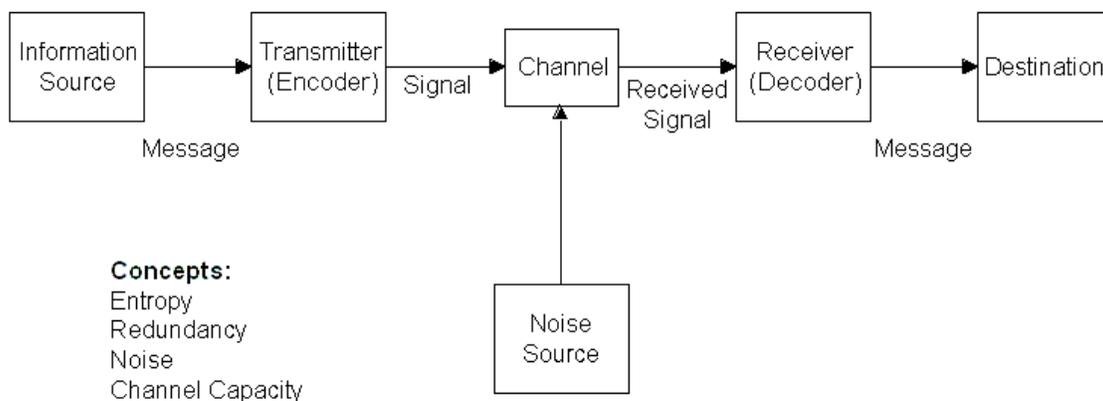
Shannon's (1948) model of the communication process is, in important ways, the beginning of the modern field. It provided, for the first time, a general model of the communication process that could be treated as the common ground of such diverse disciplines as journalism, rhetoric, linguistics, and speech and hearing sciences.

Part of its success is due to its structuralist reduction of communication to a set of basic constituents that not only explain how communication happens, but why communication sometimes fails. Good timing played a role as well. The world was barely thirty years into the age of mass radio, had arguably fought a world war in its wake, and an even more powerful, television, was about to assert itself. It was time to create the field of communication as a unified discipline, and Shannon's model was as good an excuse as any.

The model's enduring value is readily evident in introductory textbooks. It remains one of the first things most students learn about communication when they take an introductory communication class. Indeed, it is one of only a handful of theoretical statements about the communication process that can be found in introductory textbooks in both mass communication and interpersonal communication.

Figure 1 : Shannon's (1948) Model of the communication process.

Shannon's model, as shown in Figure 1, breaks the process of communication down into eight discrete components:

1. An information **source**. Presumably a person who creates a message.

2. The **message**, which is both sent by the information source and received by the destination.

3. A **transmitter**. For Shannon's immediate purpose a telephone instrument that captures an audio signal, converts it into an electronic signal, and amplifies it for transmission through the telephone network. Transmission is readily generalized within Shannon's information theory to encompass a wide range of transmitters. The simplest transmission system, that associated with face-to-face communication, has at least two layers of transmission. The first, the mouth (sound) and body (gesture), create and modulate a signal. The second layer, which might also be described as a channel, is built of the air (sound) and light (gesture) that enable the transmission of those signals from one person to another. A television broadcast would obviously include many more layers, with the addition of cameras and microphones, editing and filtering systems, a national signal distribution network (often satellite), and a local radio wave broadcast antenna.

4. The **signal**, which flows through a channel. There may be multiple parallel signals, as is the case in face-to-face interaction where sound and gesture involve different signal systems that depend on different channels and modes of transmission. There may be multiple serial signals, with sound and/or gesture turned into electronic signals, radio waves, or words and pictures in a book.

5. A carrier or **channel**, which is represented by the small unlabeled box in the middle of the model. The most commonly used channels include air, light, electricity, radio waves, paper, and postal systems. Note that there may be multiple channels associated with the multiple layers of transmission, as described above.

6. **Noise**, in the form of secondary signals that obscure or confuse the signal carried. Given Shannon's focus on telephone transmission, carriers, and reception, it should not be surprising that noise is restricted to noise that obscures or obliterates some portion of the signal within the channel. This is a fairly restrictive notion of noise, by current standards, and a somewhat misleading one. Today we have at least some media which are so noise free that compressed signals are constructed with an absolutely minimal amount information and little likelihood of signal loss. In the process, Shannon's solution to noise, redundancy, has been largely replaced by a minimally redundant solution: error detection and correction. Today we use noise more as a metaphor for problems associated with effective listening.

7. A **receiver**. In Shannon's conception, the receiving telephone instrument. In face to face communication a set of ears (sound) and eyes (gesture). In television, several layers of receiver, including an antenna and a television set.

8. A **destination**. Presumably a person who consumes and processes the message.

Source: Shannon, C. E. A (1948). Mathematical Theory of Communication. Bell System Technical Journal, vol. 27, pp. 379-423 and 623-656, July and October, 1948.