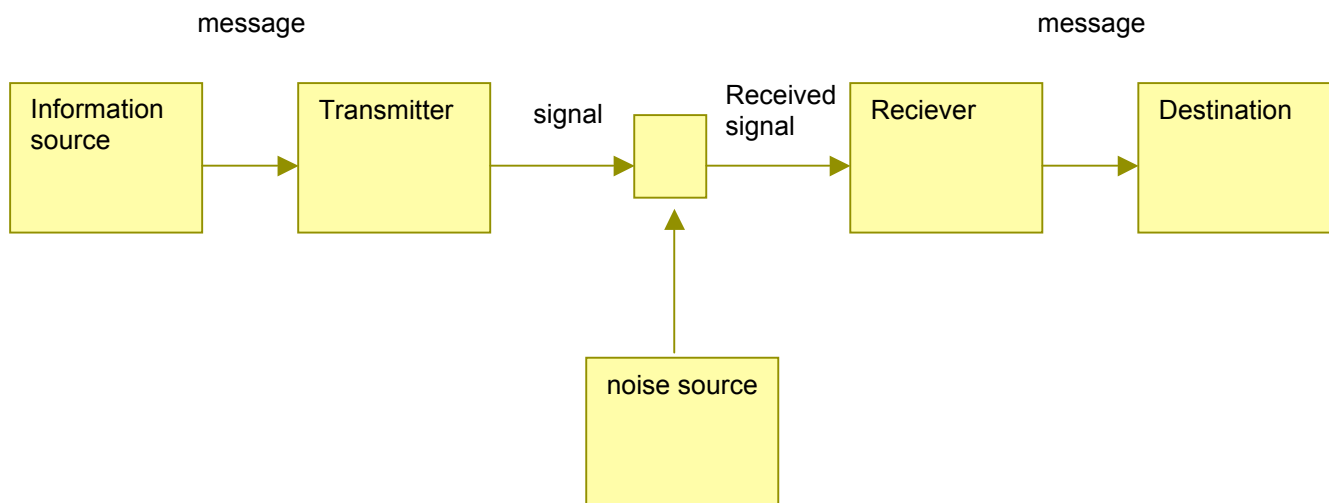


The Transmission Model of Communication

In a theoretical way it may help to use the model of communication developed by Shannon and Weaver (1949). To have a closer look on our infographics using a transmissive model of communication: a model which reduces communication to a process of 'transmitting information'.

Shannon and Weaver's model is one which is, in John Fiske's words, 'widely accepted as one of the main seeds out of which Communication Studies has grown' (Fiske see p. 27). Claude Shannon and Warren Weaver were not social scientists but engineers working for Bell Telephone Labs in the United States. Their goal was to ensure the maximum efficiency of telephone cables and radio waves. They developed a model of communication which was intended to assist in developing a mathematical theory of communication. Shannon and Weaver's work proved valuable for communication engineers in dealing with such issues as the capacity of various communication channels in 'bits per second'. It contributed to computer science. It led to very useful work on redundancy in language. And in making 'information' 'measurable' it gave birth to the mathematical study of 'information theory'. However, these directions are not our concern here. The problem is that some commentators have claimed that Shannon and Weaver's model has a much wider application to human communication than a purely technical one. C & W's original model consisted of five elements:



1. An information source, which produces a message.
2. A transmitter, which encodes the message into signals
3. A channel, to which signals are adapted for transmission
4. A receiver, which 'decodes' (reconstructs) the message from the signal.
5. A destination, where the message arrives.
6. A sixth element, noise is a dysfunctional factor: any interference with the message travelling along the channel (such as 'static' on the telephone or radio) which may lead to the signal received being different from that sent.

For the telephone the channel is a wire, the signal is an electrical current in it, and the transmitter and receiver are the telephone handsets. Noise would include crackling from the

wire. In conversation, my mouth is the transmitter, the signal is the sound waves, and your ear is the receiver. Noise would include any distraction you might experience as I speak.

Although in Shannon and Weaver's model a speaker and a listener would strictly be the source and the destination rather than the transmitter and the receiver, in discussions of the model the participants are commonly humanised as the sender and the receiver. My critical comments will refer less specifically to Shannon and Weaver's model than to the general transmission model which it reflects, where communication consists of a Sender passing a Message to a Receiver. So when I am discussing transmission models in general I too will refer to the participants as the Sender and the Receiver.

Shannon and Weaver's transmission model is the best-known example of the 'informational' approach to communication. Although no serious communication theorist would still accept it, it has also been the most influential model of communication which has yet been developed, and it reflects a commonsense (if misleading) understanding of what communication is.

Remember Lasswell's verbal version of this model: 'Who says what in which channel to whom with what effect ?' was reflected in subsequent research in human communication which was closely allied to behaviouristic approaches.

Levels of problems in the analysis of communication

Shannon and Weaver argued that there were three levels of problems of communication:

- A. The technical problem: how accurately can the message be transmitted?
- B. The semantic problem: how precisely is the meaning 'conveyed'?
- C. The effectiveness problem: how effectively does the received meaning affect behaviour?

Shannon and Weaver somewhat naively assumed that sorting out Level A problems would lead to improvements at the other levels.

Although the concept of 'noise' does make some allowance for the way in which messages may be 'distorted', this frames the issue in terms of incidental 'interference' with the sender's intentions rather than in terms of a central and purposive process of interpretation. The concept reflects Shannon and Weaver's concern with accuracy and efficiency.

How To Create An Effective Information Graphic

by Juan C. Dürsteler
<http://www.infovis.net/>

To make a good information graphic is not an easy thing. It is fundamental to know what purpose it serves and to whom it is addressed, but it's also convenient to follow a coherent process in order to correctly make it.

In this issue we describe this process.

Recently I had the opportunity to prepare and give a course on information graphics for a financial entity. The subject of the course was to explain what you have to take into account when preparing a graphical presentation, especially when the data is quantitative.

So the idea wasn't to explain how to make business charts with Excel or PowerPoint, even though we should use these ubiquitous tools to build them, but what techniques we should use in order to make the charts clearer and easier to understand.

Surprisingly enough there is very little literature on the topic. (At the end of this article you can consult a list of interesting books). The available books and information can be divided (in a rough approximation) into two categories.

- a) Catalogues of types of graphics and charts commonly used.
- b) Information on the theory and aesthetics of quantitative charts.

It's difficult to distil elementary but general principles that summarise the best practice in performing business graphics or, in general, graphic presentations. And this is so for several reasons.

The audience.

You cannot unlink the charts from the audience they address. It's quite different making a chart show the evolution of sales for a meeting of sales people than presenting a marketing campaign to the board of directors, even though the data can be the same.

The objective the chart hopes to achieve.

Information graphics can be done for several reasons. Among them we can highlight the following ones. To transmit or communicate a message. Sales have improved but we are still behind budget....

To present large amounts of information in a compact and easy to understand way. A road map is an archetypical example of this type of objective.

To reveal the data.

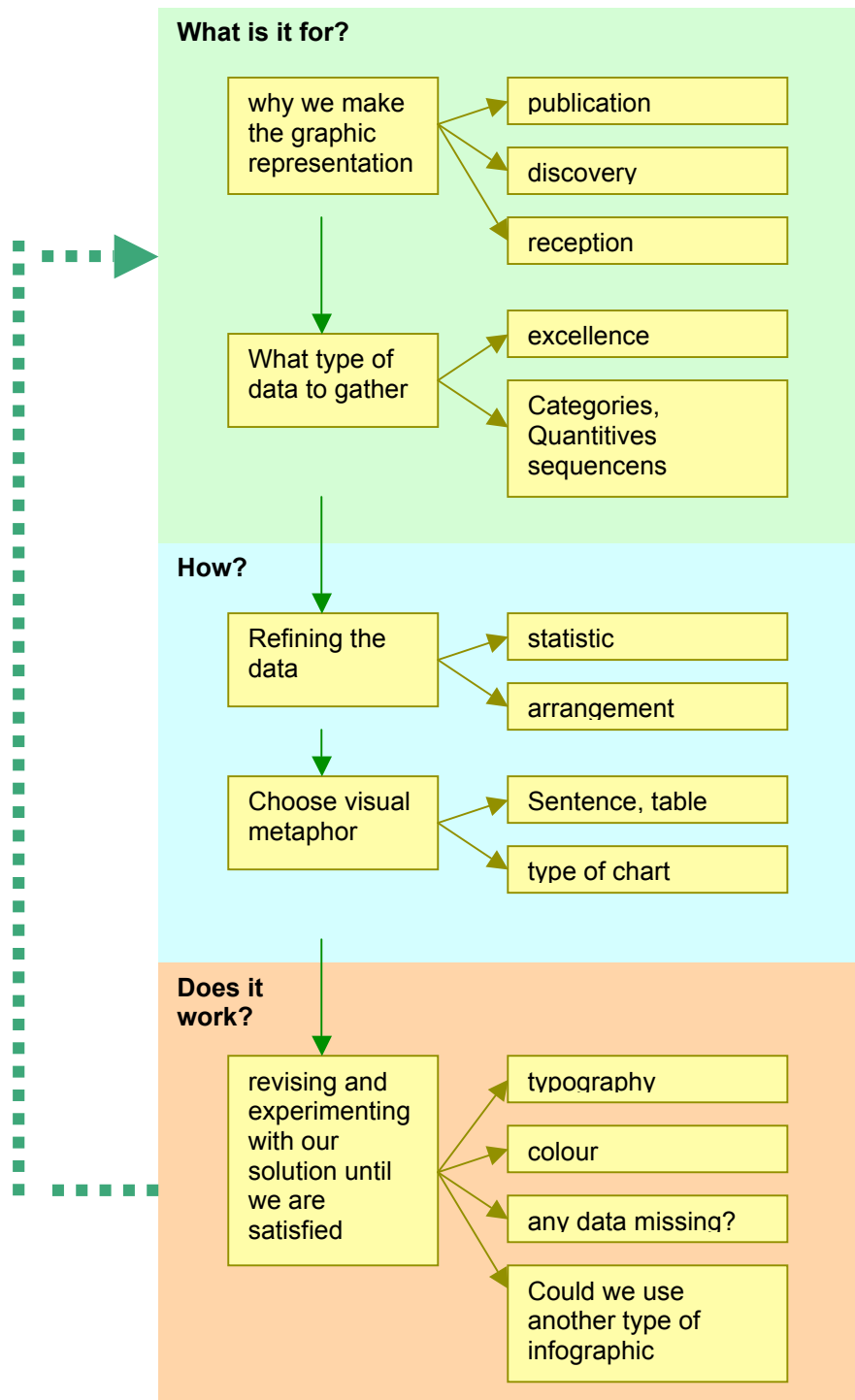
Discovering cause-effect relations, knowing what's happening. It appears that in the business environment people think more about information graphics in order to show what is already known rather than discovering what is still unknown.

To periodically monitor the evolution of certain parameters. For example the evolution of stock exchange, sales, budget...

The process of making an information graphic

It appears that the pressure of everyday work and the little time that we have means that when we are about to perform an information graphic we adopt the tactics of immediacy. We start Excel, throw in some data and select a chart type, accepting the terrible colours that Excel gives us by default.

In order to facilitate the process of creating a chart:



The process is divided into three parts:

1) What is it for?

The reason why we make the graphic representation . This determines the type of data to gather and about which we have to ask what type it has to be (quantitative, sequential categorical...) and more importantly: are they relevant for what we want?

2) How?

In what way we will represent the data. A fundamental aspect of this section is that information graphics are interesting because they reveal differences. For this reason refining them and representing the data derived from their statistical treatment often reveals aspects that otherwise would result confusing. Once data is refined we have to choose the most effective visual metaphor. Sometimes, for a little data, a table or even a sentence can be clearer than a chart. In certain occasions changing the colour palette or the type of chart can clarify the situation enormously.

3) Does it work?

We can obtain a nice and elegant chart but, if it doesn't fit the goal that we have defined in the first step, we will have failed. The key resides in revising and experimenting with what we have done until we find an improvement.

Varying the colours, reducing the saturation of what is less important and increasing it for the most relevant data, modifying the typography, the size of fonts, eliminating everything that doesn't contribute to showing and clarifying the data (irrelevant grids, redundant data, unnecessary labels) without losing relevant information sometimes provides surprisingly improved results.

In the end, making a good information graphic consist of facilitating the understanding of complexity, instead of complicating what is simple. And this cannot be achieved without the clear understanding of what goal we pursue, who our audience is and a good deal of work and reflection.
