

## Strategies for creating successful information graphics



Fig 1 Anatomy of an accident, El Pais.



Fig 2 Shell Map, Marshall Islands.

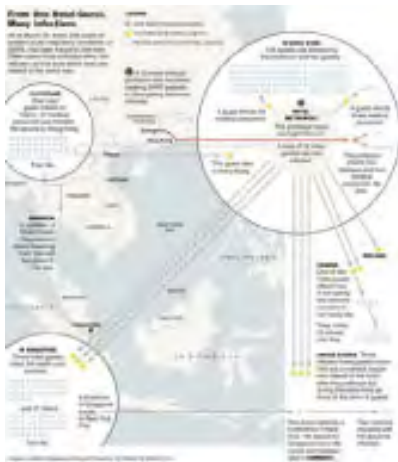


Fig 3  
How SARS spread, The New York Times.

**1. ORGANIZE:** Organizing the available information and coming up with a plan for presenting it is the first and probably the most difficult stage in designing any infographic. The train accident infographic (fig.1) explains the collision of two trains triggered by an automobile veering off a nearby highway.

The key to reconstructing an event like this is to establish the role of geography, the cause, the chronological sequence, and the facts of the objects involved. All of these pieces of information have to be organized effectively with right amount of detail and emphasis to make sure the viewer experiences the incident as an authentic whole.

**2. MAKE VISIBLE:** It is the essential quality for an infographic. The fishermen of Marshall Islands have for centuries used maps (fig.2) made using shells tied together by bamboo sticks, to visually represent the distance between the various islands, their locations with respect to each other, and the direction of currents.

**3. ESTABLISH CONTEXT:** Going back to the train accident example, establishing context begins with locating the geography of the accident site so that the viewer get the bearings on the topography of the event. The designers have chosen the top view because the key components are the highway and the tracks below. Notice the view is closer when the first collision happens and gets wider during the second collision. Through this the difference in scale of collision is established. The viewer is able to experience the fact that a small vehicle has triggered a catastrophic collision.

**4. SIMPLIFY:** Representations that are simple and direct are easier to interpret. We get easily distracted by extraneous properties of representation. The NYT graphics on the spread of the SARS virus (fig.3) exemplifies the principle of simplicity – most notably in its visual treatment of the map and use of colors.

The graphic talks about a spread from country to country. Hence a coarse representation is good enough to convey that message. Colors are used to indicate the primary, secondary and tertiary spreaders of the virus and it is critical piece of information. Hence you see only 3 colors in the entire graphic.

**5. ADD REDUNDANCY:** Redundancy is a concept which has emerged from the information theory to communication. Redundancy is the opposite of information. Something that is redundant adds little, if any, information to a message. Yet much of the information we deal with in everyday life contains a good deal of redundancy.

The English language, for example, can be mostly understood if you remove the vowels. Cnsdr ths sntnc, fr xmpl. One of the purposes of adding redundancy to a stream of information is to make it easier for us to digest information. Although the sentence without vowels can be read, it is harder to read. On a noisy transmission channel, the redundancy enables the reader to correct errors that may have been introduced into the stream of information. Noise is any factor in the process that works against the predictability of the outcome of the communication process. For example, traffic lights communicate through color. They also use position to reinforce the message.

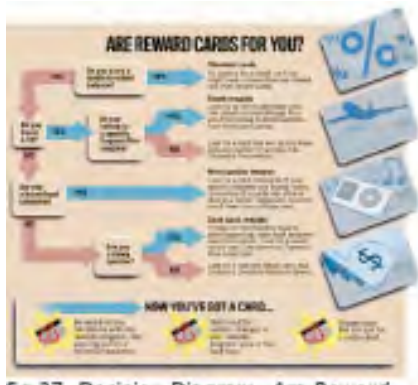


Fig 4 Decision Diagram. Are Reward Cards for you?

While adding redundancy offsets noise, too much redundancy is inefficient. Using repetition, reiteration and restatement, we run the risk of burdening or boring the audience. So, maintaining an optimal balance between predictability and uncertainty is the key to success in communication.

**6. SHOW CAUSE AND EFFECT:** When we try to comprehend something, we are looking for information to understand the underlying mechanisms. Reasoning is about examining causality.

Earlier we saw an example which shows cause and effect in of Dr. John Snow's medical detective work in which he identified the cause of Cholera epidemic in London. Similarly the decision diagram (fig.4), lucidly shows the cause and effect by taking the viewer through a decision diagram about whether a particular is suitable for them or not.



How to dance the electric slide. Wordless Diagrams, Nigel Holmes.

**7. COMPARE AND CONTRAST:** Together with what is the cause, and what is the effect, the third important question that needs to be answered is, compared to what?

In the NYT graphic on the spread of SARS, comparison comes across through the use color-coding, which differentiates primary, secondary and tertiary infections. Dots are used to indicate the number of infected people. This helps us to make a quick visual comparison of the volumes infected people across different countries.

**8. CREATE MULTIPLE DIMENSIONS:** We saw earlier the graphic by Minard in which he manages to portray six dimensions - the size of the army, latitude, longitude, direction the army is moving, temperature, and date. On a single sheet of paper with no text, he eloquently captures Napoleon's failed march to take Russia.

The NYT SARS graphic too is multi-dimensional. The graphic informs us about space (map of South East Asia), volume (numbers of infected), and movement of infected people (arrows to indicate the direction of spread).

**9. INTEGRATE:** It is importance to tell a "coherent story". This means avoiding references for figures and examples, which are physically removed from the flow of the text. Also information for comparison should be put side by side. That is, within the eye span, not stacked in time on subsequent pages.



Gray's Anatomy. Words well integrated with the image.