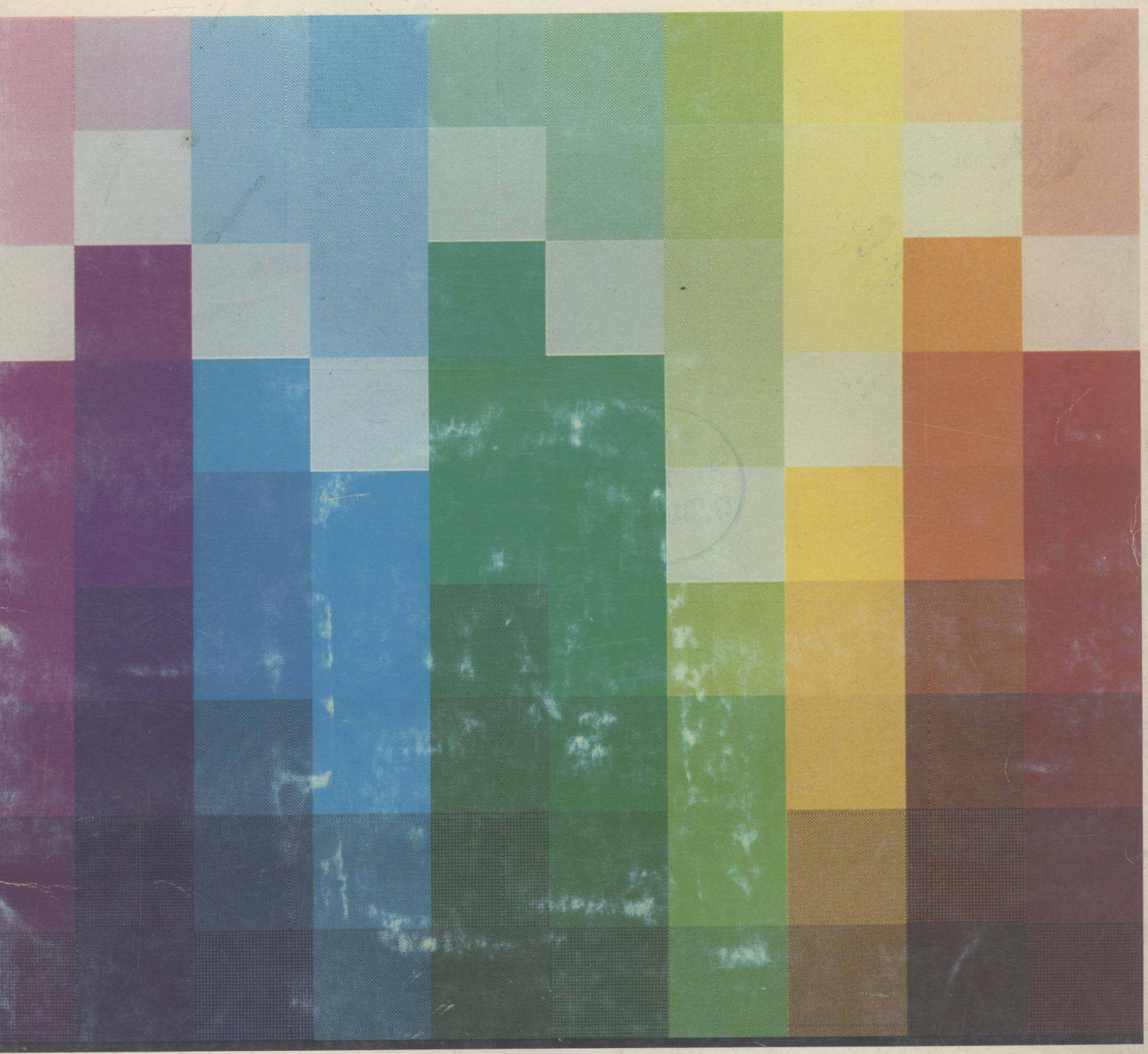
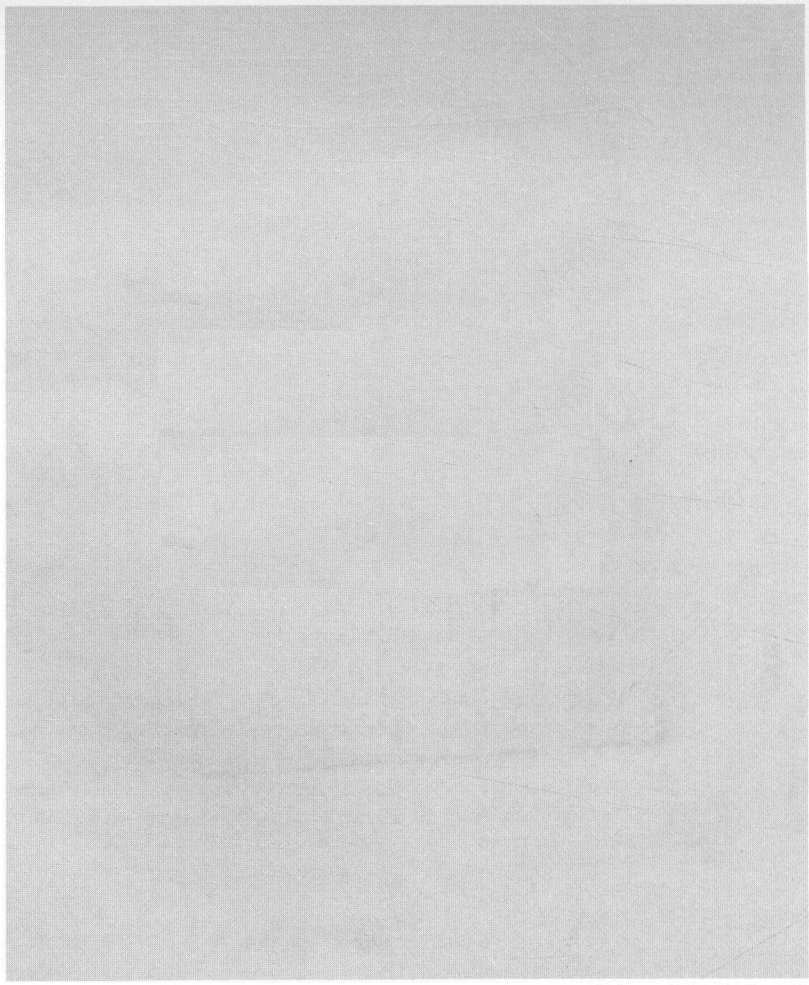
Steps to Effective Business Graphics



Steps to Effective Business Graphics

Betty S. Matkowski

designed by
George Uniacke



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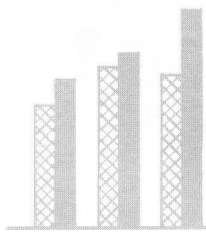

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Getting down to business

Computers are changing the business world more and more with each passing day. At one time, computers were large "machines" that were blamed for everything that went wrong. Now, with the advances in microchip technology, they are personal tools that help make your job easier. After you've experienced the convenience of having a computer help you get your job done, you wonder how you ever got along without it. But, along with making your job easier, your computer has given you data that may never have been available before. And, you can get this data quickly; but, what do you do with it once you have it?

Your computer has the answer for this, too. It can turn all those numbers into graphics that help you analyze the data, then present that data to others in an understandable way. Even if you are already using computer graphics, you may not yet understand the potential for turning data from your computer into information that you can use effectively. That's why ***Steps to Effective Business Graphics*** was written.

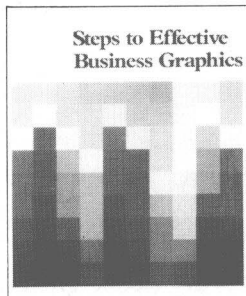
To better understand what this booklet can do for you, let's take a closer look at the title. "Business Graphics" means graphics that are appropriate for running a business. This booklet does not discuss measurement graphics, design graphics, or any other form of technical graphics. People in these fields may find this booklet helpful, but must realize that some of the guidelines discussed may not apply to their special applications. "Effective" business graphics follow the same principles of good graphic design that are used by the professional designers in art departments. And, these graphics serve a stated purpose. The word "Steps" is used because the booklet gives you an organized approach for making the decisions necessary to achieve effective business graphics.

This booklet assumes that you understand the business graphics software package that you are using. Be aware that no software package will allow you to manipulate all of the factors that contribute to good design. A software package is written for a wide audience, and makes decisions based on what's "best" for the majority of its users' applications. In some cases, this may not be the best fit for your situation. But by applying the guidelines discussed here to the elements of design that your software package does allow you to control, you can create effective business graphics.

The examples in this booklet are representative of effective business graphics. All of the charts that are used here as examples were originally created on a Hewlett-Packard plotter. An HP plotter gives you the speed that you need for data analysis and the quality that you need for publication and for professional presentations. HP plotters are supported on all HP computers and many non-HP computers.

Acknowledgements

This booklet began as a "nice to have" idea. It grew into a "must have" reality because people at Hewlett-Packard believe that quality graphics also mean graphics that follow the principles of good design. HP managers, coworkers, field representatives, and a few special mentors gave support and encouragement. HP customers shared information about their graphics applications. The production team — George Uniacke, Winifred Green, Terry Gaines, Dottie McDermott, Greg Sutor, Wehnetta McCord, Irene Flores Ortiz, Vickie Behrens, Linda Cunningham, Rick Jones, and John Perry — was enthusiastic and willing to do more than just their jobs, even on long days and weekends. To all these people — thank you, it was a pleasure to work with you.



The front cover design was produced on the HP 2700 color graphics terminal using Paintbrush software and was transferred to film with Presentation 2700 software.

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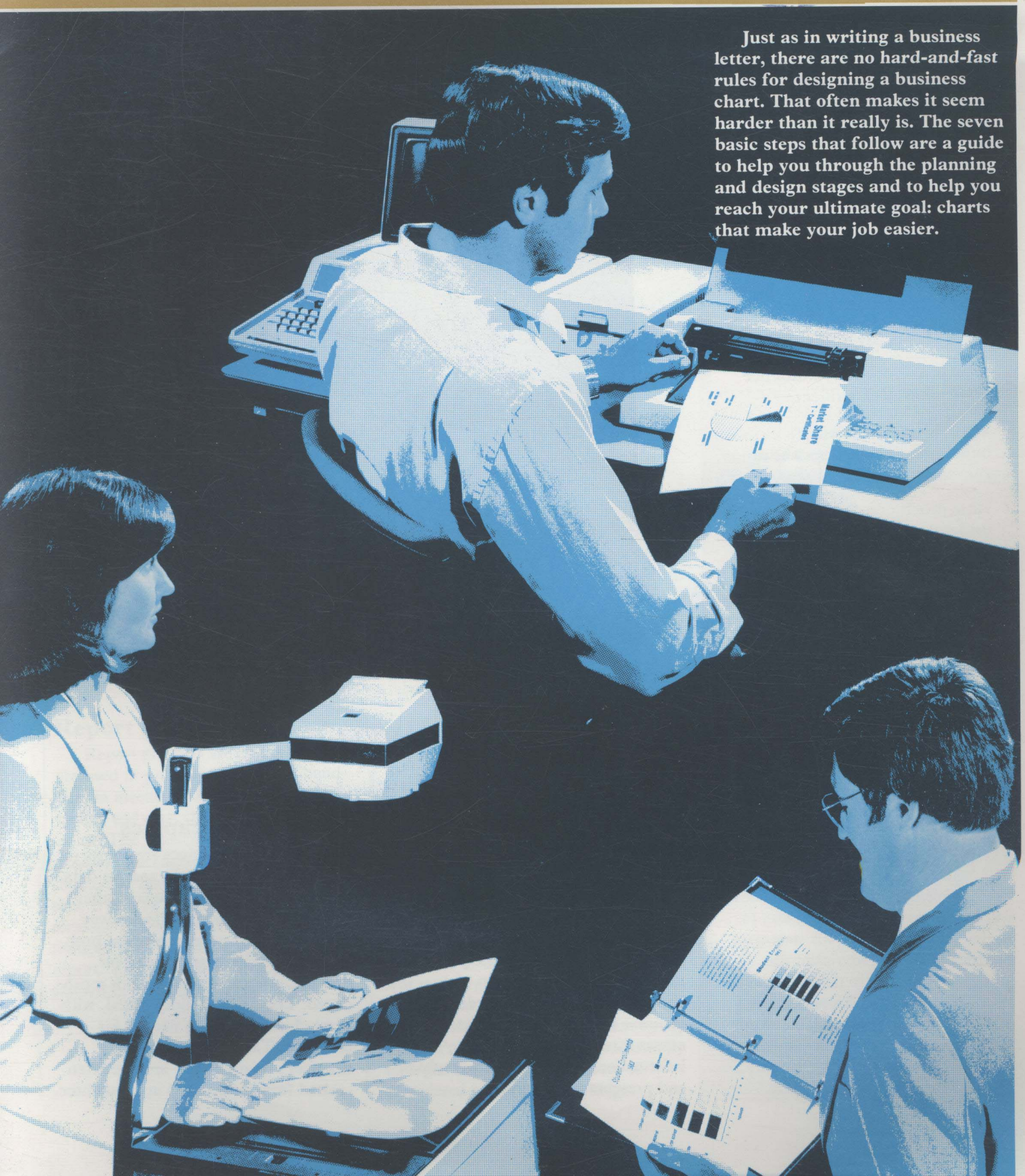
The Seven Basic Steps



Just as in writing a business letter, there are no hard-and-fast rules for designing a business chart. That often makes it seem harder than it really is. The seven basic steps that follow are a guide to help you through the planning and design stages and to help you reach your ultimate goal: charts that make your job easier.

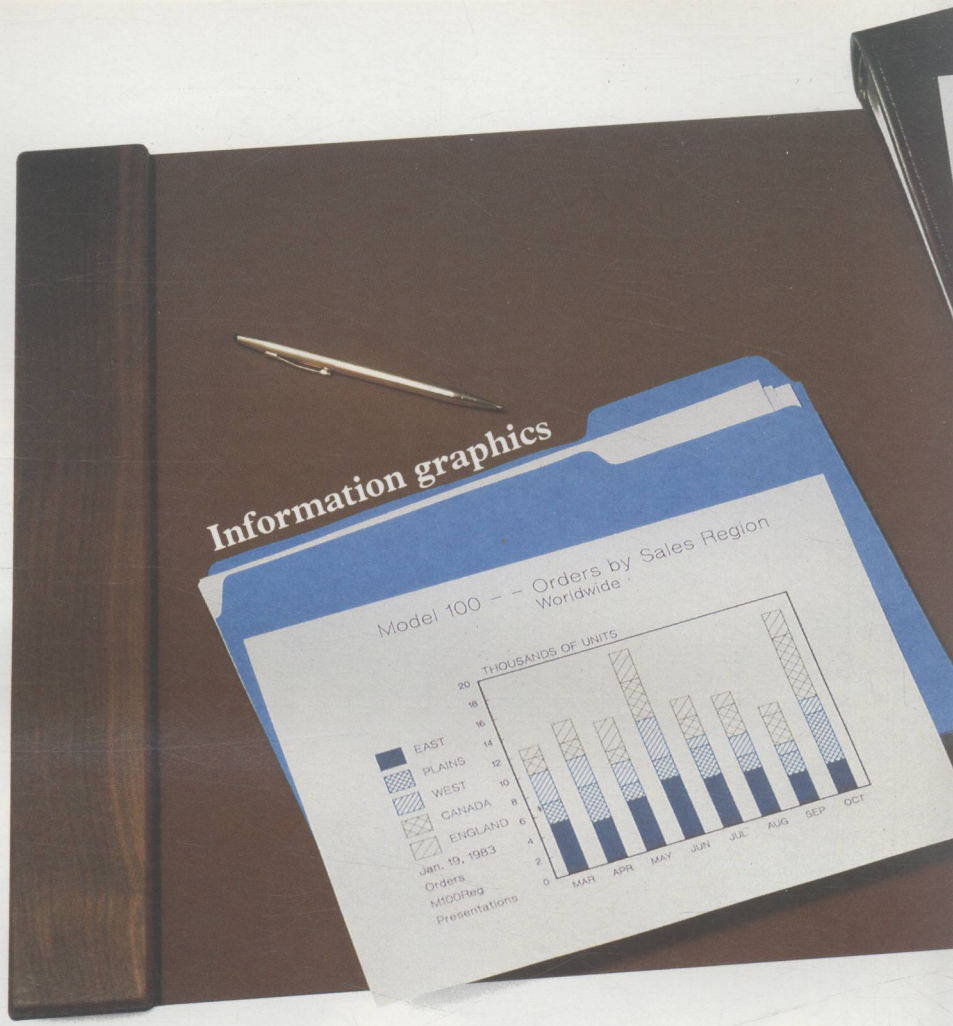
Know What You're Trying to Achieve

In order to produce effective business charts, you must know two things. First, you need a clear idea of who your audience is. Then, you must establish an objective for the chart that you are going to create. Audience and objective should influence every decision that you make in the design process.

Define your audience.

A clear definition of your audience will allow you to tailor your chart to their needs. You will be able to communicate a message that is more easily and quickly understood. For example, a chart prepared for a management briefing would not be appropriate for a staff training class on the same topic. When defining this audience, answer these questions:

- **Who is my audience?**
- **What size is my audience?**
- **How much does my audience know about the subject?**
- **What are my audience's beliefs and prejudices about the subject?**
- **How much can my audience understand at one time?**
- **Why does my audience want this information?**
- **What will my audience do with the information?**



State your objective.

Stating the objective for a chart prevents you from wandering away from your intended message. It also gives you a means to evaluate the success of your chart.

Consider your audience when you state your objective. A phrase like "After viewing this chart my audience will be able to . . ." is a good way to begin. Then, complete this statement by describing what you want the audience to be able to do, for example "name the five top sales regions for 1983." Use strong, measurable words when describing what you want your audience to do, such as "to identify," "to compare," or "to distinguish."

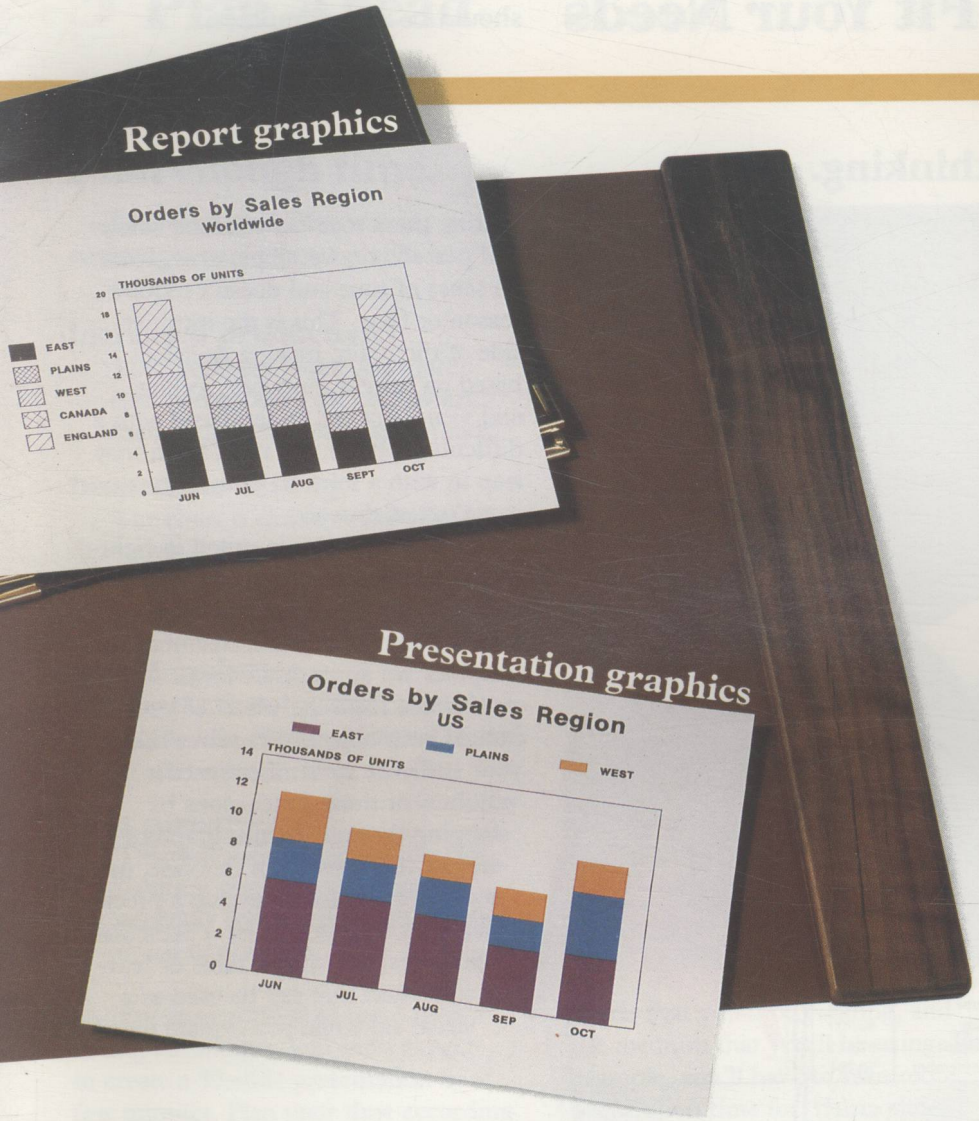
If your objectives contain words like "to understand" or "to appreciate," it will be difficult to evaluate the success of your chart.

Choose your medium.

Your audience and objective will help you decide which medium (paper, overhead transparency film, or 35mm slide) you should use. To help you understand the relationship of audience, objective, and medium in business graphics, this booklet discusses three kinds of graphics: information graphics, report graphics, and presentation graphics.

Information graphics

Information graphics are charts for your own use. They help analyze data and often replace all those computer printouts. They are the throw-away charts that help solve immediate problems. These charts are plotted on standard size paper, and are not reproduced. They can be complicated, with as much annotation as needed for reference. These charts are the manager's "workhorse" and are often created from data stored in a data base.



Report graphics

Report graphics are charts that are used in printed reports or as handouts in meetings. These charts must be simple and each should make only one point. The reader will be able to examine the chart at his own pace, but should not have to spend too much time trying to figure out what the message is. These charts are usually reduced to fit allotted space in the report. This reduction must be considered in the original chart design.

Presentation graphics

Presentation graphics are charts that are used in presentations. They are visual aids that help support your point, focus attention on a specific detail, or clarify your meaning. These charts must be visible from the most distant seat in the room, be clear and understandable at a glance, and carry only information essential to the point being made. Presentation graphics are usually enlarged for viewing; this must be considered in the original design.

The medium that you choose to use in a presentation will depend on the number of people who will be present; the size and arrangement of the room; the facilities, such as lighting and sound system; the time that is available to prepare; and the importance of the speaker's role.

Choose overhead transparencies for effective two-way communication. With overheads, the room is not darkened, so the flow of ideas between the speaker and audience is not damaged. The speaker also has good control of the visual aids and can change them as needed. Overheads can be prepared quickly and are good for large and small audiences. Overhead projectors are common in most businesses around the world; so overheads are a good choice when traveling.

Choose 35mm slides for presentations to large audiences where the interaction between the speaker and audience is not extremely important. With 35mm slides, you can mix charts with photographs, sharing experiences that would otherwise be impossible. You can send your slides and script or tape to several locations, conveying the same message to many audiences. These slides are costly to produce, often requiring many days in production.

Choose a flipchart only if your audience is small. Flipcharts are a good choice if you are not sure that a projector or electrical outlet will be available. These charts can also be effective for roundtable discussions.

2 Decide If Graphics Fit Your Needs

You've defined your audience, and decided which medium is best. Now it's time to decide if you really should be using graphics.

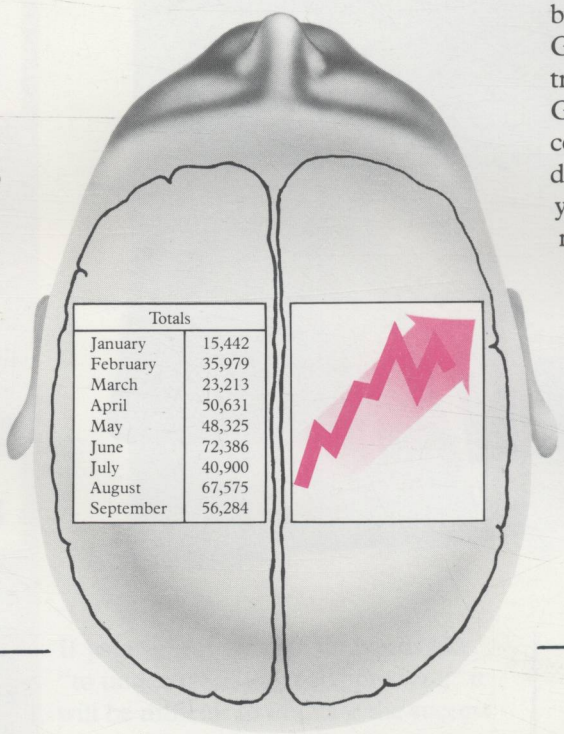
Consider the two ways of thinking.

Several studies of the brain indicate that there may be two ways of thinking: verbal and nonverbal. These studies have shown that the brain is divided into two hemispheres, each with its own way of thinking. Understanding the general principles of right-and-left brain thinking can help you decide if a graphic approach is best.

The left brain is the verbal hemisphere. It uses words to name and define. It is the counting side of the brain and uses symbols to stand for something; for example, "+" stands for the process of addition. The left brain's approach is step-by-step and it keeps track of time. It uses reason and facts to draw conclusions based on logic. Faced with a difficult problem, the left brain carefully works through each detail in search of a solution.

The right brain is the nonverbal hemisphere. It is aware of "things" objects, ideas, and concepts — having little connection with words. It relates "things" as they are, putting them together to make wholes and perceiving overall patterns. It has no sense of time and doesn't require reason or facts. This is the intuitive side of the brain, making decisions based on insight, hunches, feelings, and visual images. When faced with a difficult problem, the right brain may leap in with a solution that seems to come out of thin air.

Left Hemisphere of the brain	Right Hemisphere of the brain
symbols for objects	mental pictures
logic	intuition
step-by-step reasoning	pattern recognition



If your objective is suited to right-brain thinking, you need graphics. Graphics are effective for spotting trends, patterns, and interrelationships. Graphics are appropriate for drawing conclusions from the whole of your data. If your objective requires that your audience remember specific numbers or draw conclusions by stepping through details, graphics are not the answer. In this case, use a computer printout; develop a precise table for a report; or for a presentation, design a simple table or text-only chart that can be used as a visual aid while you explain details.

Of course, graphics and words are most effective when they are used to complement each other. Each has its place in communicating an effective message in a report or presentation. The emphasis will depend on your audience and your objective.

Remember that graphics can:

- **emphasize relationships**
- **uncover hidden facts**
- **create interest**
- **save time in analyzing data**
- **improve recall**
- **force order and sequence in a presentation or report**
- **establish a common starting point for an audience**
- **shorten the time spent in meetings**
- **make translation easier since most pictures are universally understood**

3 Plan Ahead

Always take time to plan your chart. You will find that if you take a few minutes in the beginning to plan, you'll save time in the later steps and your chart will be much closer to fitting your audience, objective, and medium.

Plan enough time.

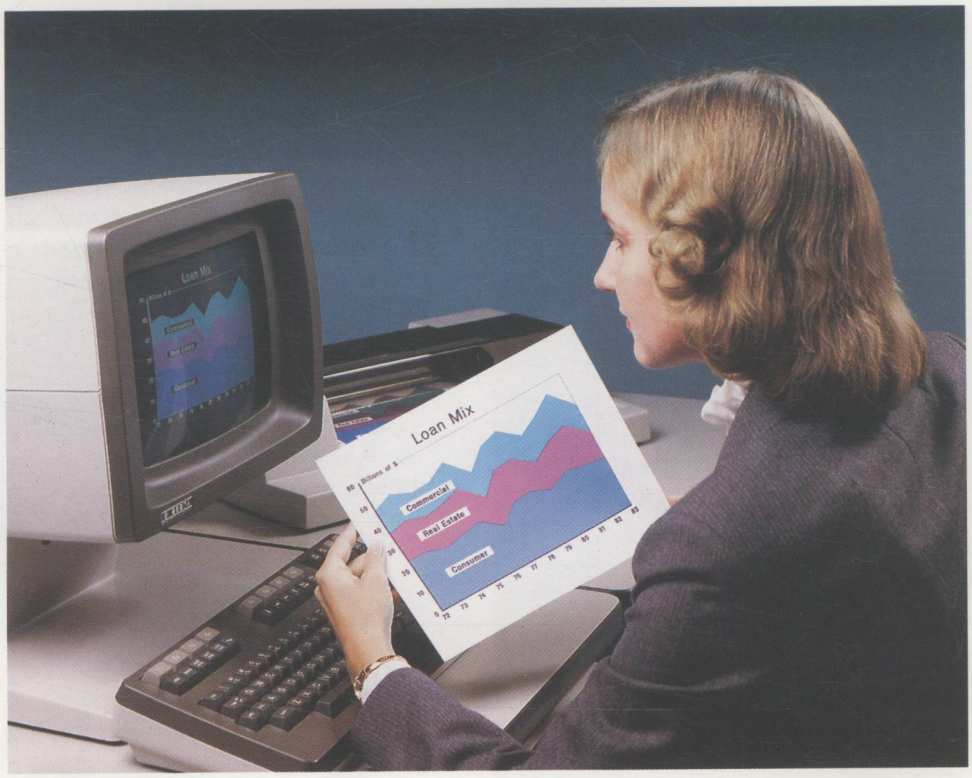
There are many time-saving advantages to computer graphics:

Increased productivity
Most complex charts are more easily done using the computer than with the traditional methods.

Immediate editing
The chart is quickly available for viewing and changes can be made as needed, making it easier to control the accuracy of the chart.

Rapid updating
The chart can be stored and then recalled for changes without having to start over.

Fast turnaround
This will vary depending on the medium you are using, but it is generally quicker than with traditional methods.



But even with all of these time-saving advantages, you can't expect to create a 50-slide presentation in a few minutes. Plan your time according to the number and complexity of the charts that you'll be creating, and the medium that you'll be using. For example, you'll have to plan more preparation time for 35mm slides than for overhead transparencies.

If you aren't using a computer to create graphics, see "Choosing A Computer Graphics System" in the back of this booklet for help in deciding which system will be best for you.

Consider the characteristics of good graphics.

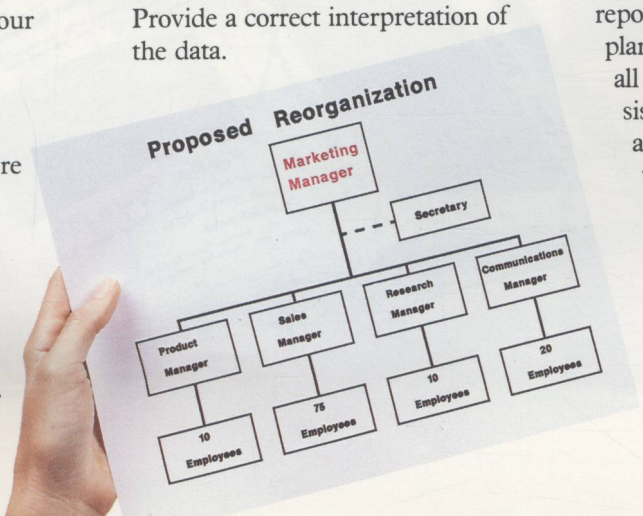
Good graphics are planned; they don't just happen. When designing your chart, keep these points in mind.

Be direct.
Focus on the main idea that you're trying to get across.

Be simple.
Avoid needless detail.

Be clear.
Use familiar terms and concepts.

Be accurate.
Provide a correct interpretation of the data.



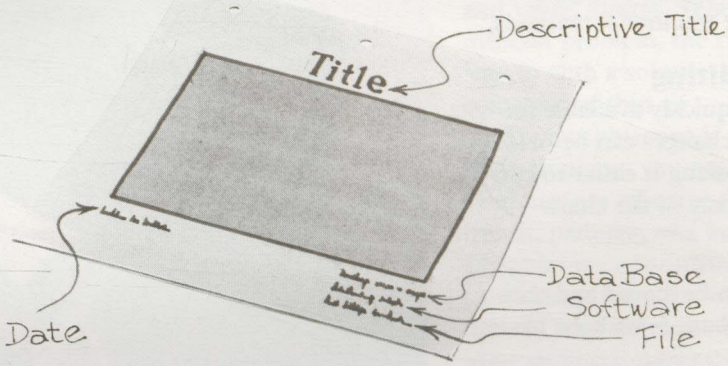
If several charts will be used in one report or presentation, they should be planned together. Plan ahead so that all the charts in a series will be consistent in style, size, color, typeface, and format. Wide variation tends to confuse the audience. And, you can use this consistency to advantage when you want to emphasize an especially important point. Making a slight change in one chart, such as in color or format, emphasizes its importance in the group.

Plan information graphics, too.

You are your own audience when you create information graphics, but that doesn't mean that you don't have to plan. Planning information graphics that are direct, simple, clear, and accurate can make analysis easier and relationships apparent.

Some of the information graphics that you create may be important enough to save. For these charts, be sure to plan enough annotation to help you remember details about the chart. You might want to include standard notations, such as the date, the data base or file that was used, the name of the software package used, and the file name used to store the completed chart. Place these outside the information area of the chart. A descriptive title that is a summary of what you concluded from your analysis could be helpful later. You might also want to leave enough space to bind these charts into a notebook.

Keep periodic charts that are used for analysis consistent. This allows you to easily compare changes in data from one period of time to another.



When planning report graphics, consider placement on the page.

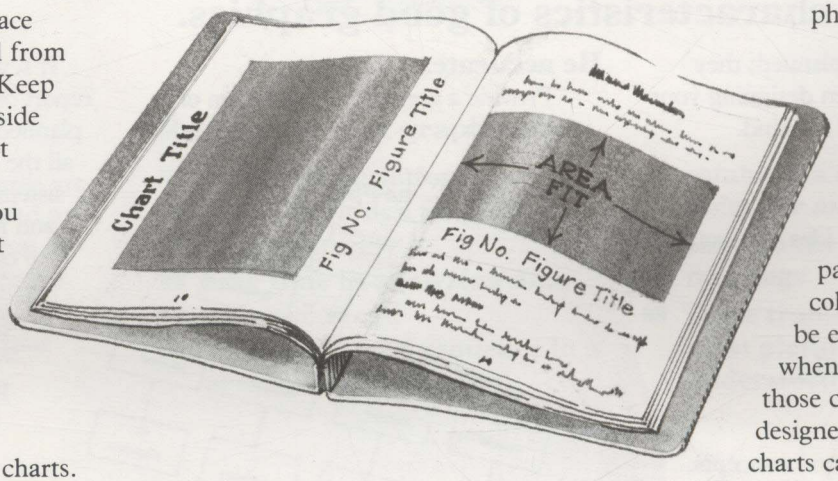
Report graphics must be sized to fit the space allotted on the printed page. This takes planning. If a chart used in a report is important to the explanation, it should be placed as close as possible to its reference in text. Don't place it before the text, nor too far after. Figure numbers and figure titles go under the chart.

To make reading easier, place charts so that they can be read from the same position as the text. Keep them within the margins set aside for text. The reader should not have to turn the document around to read the chart. If you must use a full-page chart that can't be read from the same direction as the text, place the chart so that its title is always on the left margin of the page. This allows the reader to turn the document clockwise to read all full-page charts.

In most cases, your original chart must be reduced to fit the space allotted in the report. Prepare your original in the same proportions as the final reproduction on the page. The section "How to Proportion Report Graphics" in the back of this booklet gives you instructions for doing this.

Reduction affects legibility. Keep labels and annotation large enough so that when reduced they can still be read. Thin lines and small details may be lost when the original is reduced.

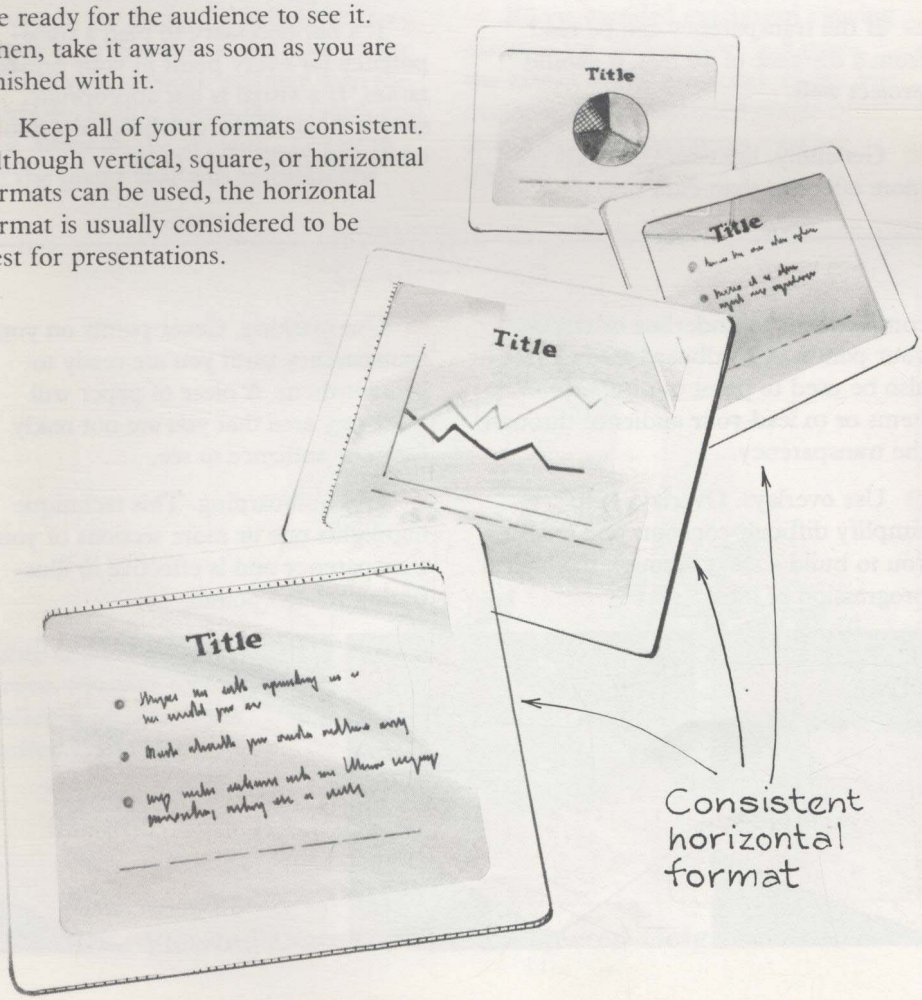
Consider the method of reproduction during the planning stage. If your chart will be printed or photocopied in black and white, choose colors with good contrast so that everything doesn't turn out to be the same shade of gray, or use black with hatch patterns. Remember color reproduction can be expensive; use it only when the benefits offset those costs. Carefully designed black-and-white charts can be very effective.



When planning presentation graphics, consider the medium that you will use.

The medium is the most important element in planning the design of a presentation graphic. But there are some general guidelines that apply to all presentations. These guidelines lead to a professional presentation.

- Every presentation should have a theme. The objective of each chart should contribute to the overall theme of the presentation.
- Limit the charts that you present to those that will help you illustrate your key points. Extras only detract from your message.
- Present each chart only when you are ready for the audience to see it. Then, take it away as soon as you are finished with it.
- Keep all of your formats consistent. Although vertical, square, or horizontal formats can be used, the horizontal format is usually considered to be best for presentations.
- Everything on a chart should be recognized instantly. If not, it should be clearly labeled.
- Keep the message simple. Since the viewing time during a presentation is short, the audience must be able to grasp your message quickly. They should be able to sketch the chart with enough accuracy to capture the key ideas.
- Use color carefully. Audiences expect to see color in a presentation, but color shouldn't call more attention to itself than to your message.

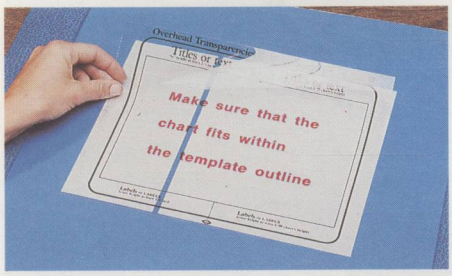


Begin planning your presentation by outlining the basic points to be made. When the basic outline is finished, one approach is to use index cards to expand your outline. Use one card for each idea; include your objective and a quick sketch of the chart. When you have all your ideas on the cards, put them in a logical sequence, deleting anything that doesn't fit your theme and filling in the gaps with new ideas. When the organization is final, number the cards and begin making your charts.

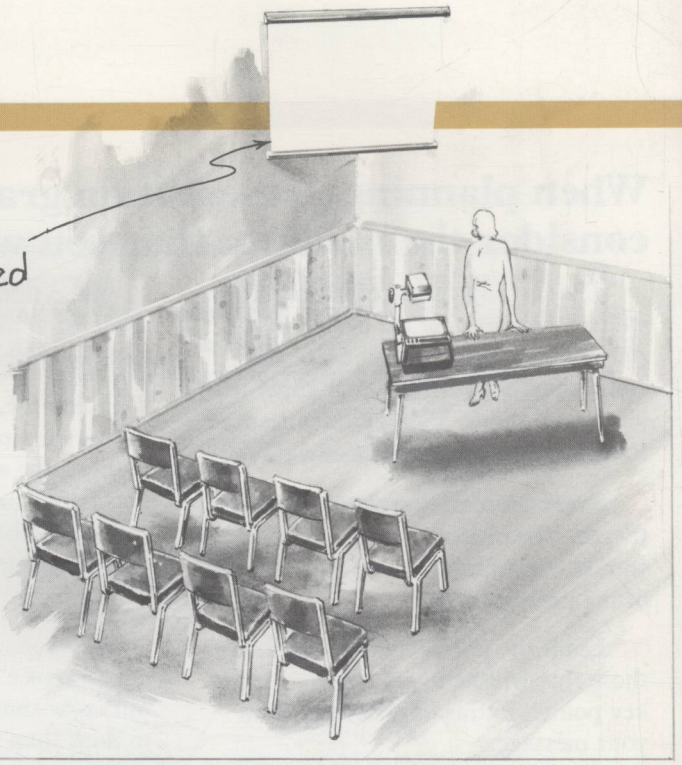
For overhead transparencies

Keep these guidelines in mind when planning overhead transparencies.

- The image area of an overhead transparency should not be larger than 7-1/2 by 9-1/2 inches. A template is included in the back of this booklet; use it to test your overheads for correct image area.



- Recommended maximum viewing distance for an overhead transparency is 6 times the width of the projected image. For example, if your image is 4 feet wide, the maximum viewing distance is 24 feet.



Setup should support communication between speaker and audience.

Viewing Distance = 6 × Projected Width

- If the transparency can be read from a distance of 10 feet, it should project well.

- Generally, light backgrounds are more effective than dark ones.

- It's not necessary to plan a transparency for every point in your presentation. If a visual is not appropriate, simply turn off the overhead projector while you make your point.

Emphasizing your message

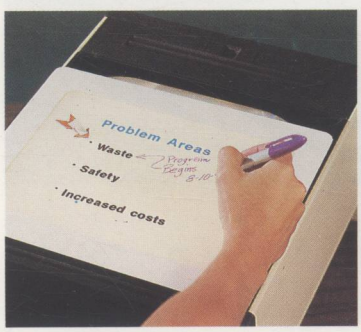
Here are some ideas that can be used to make transparencies tell your story more effectively. See "Special Effects in Overheads" in the back of this booklet for instructions.

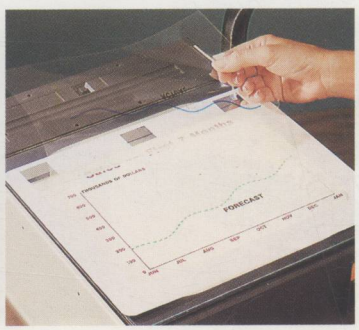
- Write directly on the overhead transparency. Cover your original with a sheet of clear acetate, then use transparency pens to add your comments or to underline or circle your points. A cardboard arrow can also be used to point out important items or to lead your audience through the transparency.

- Use overlays. Overlays help simplify difficult concepts and enable you to build a story through the logical progression of ideas.

- Use masking. Cover points on your transparency until you are ready to present them. A piece of paper will mask any area that you are not ready for your audience to see.

- Use billboarding. This technique highlights one or more sections of your transparency and is effective in illustrating related points.

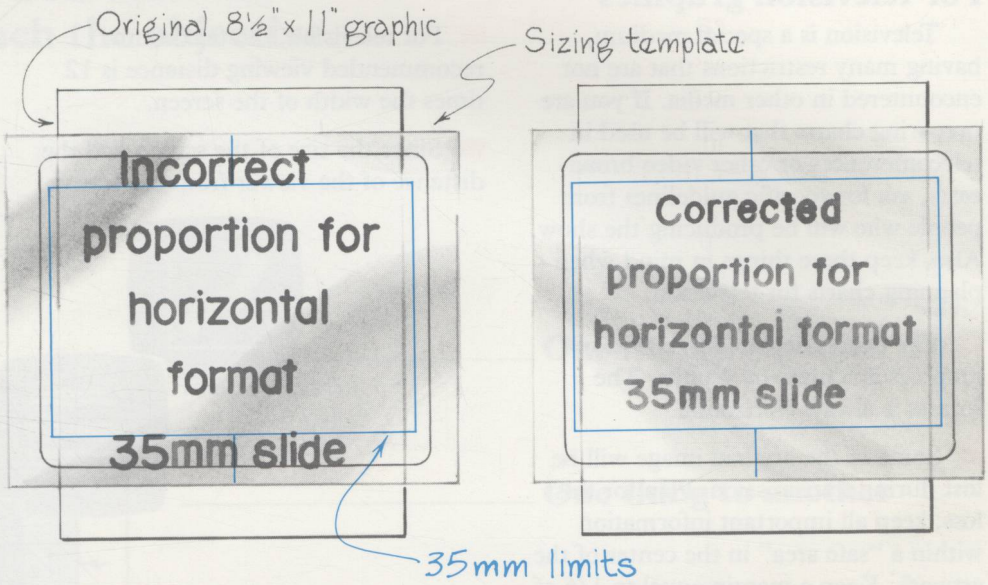




For 35mm slides

Keep these guidelines in mind when making 35mm slides.

- The proportion for 35mm slides is 2 units by 3 units, so the original artwork that will be photographed for 35mm must also be in a 2 by 3 format. If your software does not allow you to control the proportions of your chart, you may need to mount your original on a large colored background before photographs are made. This allows you to move the camera back far enough to bring the chart into the camera's image area. For best results, center the chart so that there is a border on all sides. EXTRA HELP: A template is included in the back of this booklet. Lay it over your artwork to test your image area. If your artwork is larger than the template, hold it above the artwork and look down on the art with one eye to see the image that will be projected.



- Recommended maximum viewing distance for 35mm slides is 8 times the height of the projected image. For example, if the projected image is 2-1/2 feet, the maximum viewing distance is 20 feet.

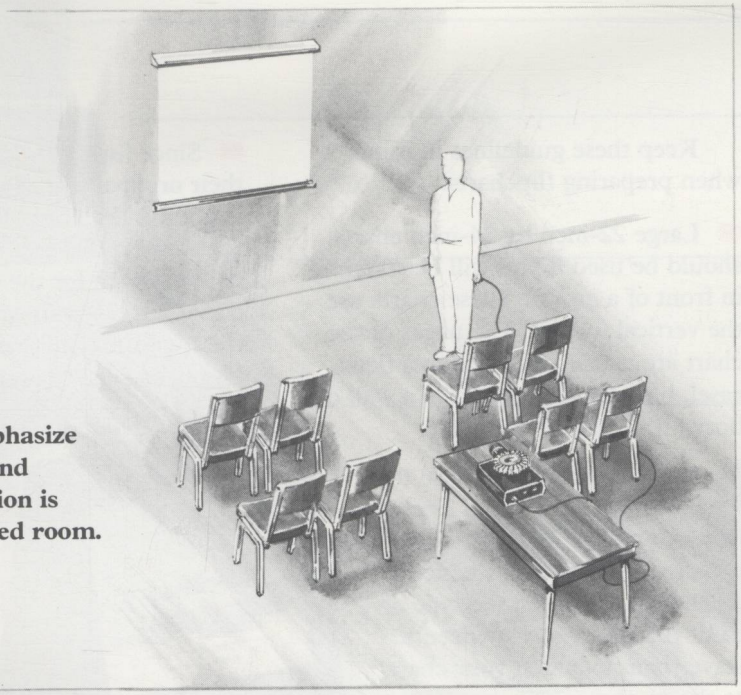
- If the original artwork can be read from a distance of 8 times its height, it should be legible when projected. For example, if your original art is 6 inches high, have someone try to read it from 48 inches away. If it can be read easily, it should project well.

- Good contrast between the image and the background is needed. This is especially important if the image will be projected from the back of the screen.

- Use a standard size and format for all artwork when creating 35mm slides. This makes it easier to photograph the artwork and to keep the images on the slides consistent throughout one presentation.

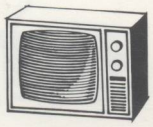
- It's not necessary to plan a slide for every point in your presentation. When you want the audience to turn its attention away from the screen and toward you, insert a black slide in the projector.

- You will find instructions for making slides that include text and for photographing artwork in the section "35mm Slide Techniques."



Setup should emphasize screen. Speaker and audience interaction is limited in darkened room.

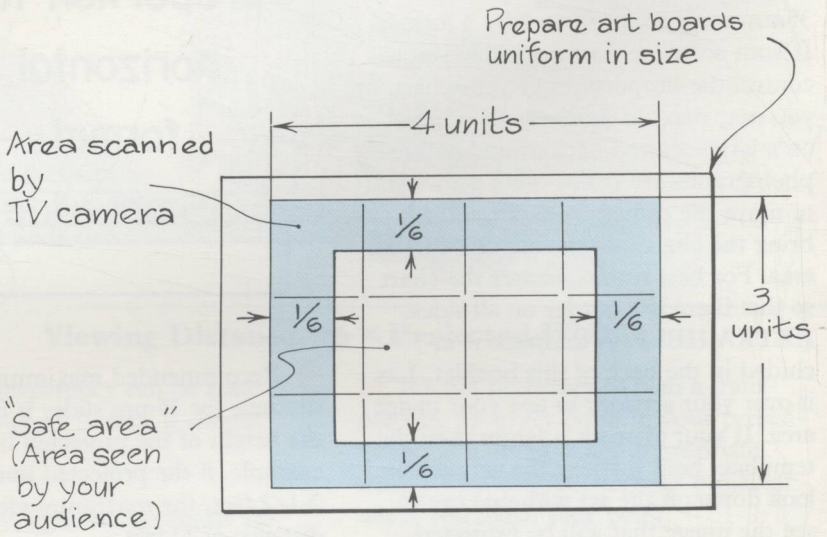
Viewing Distance = 8 × Projected Height



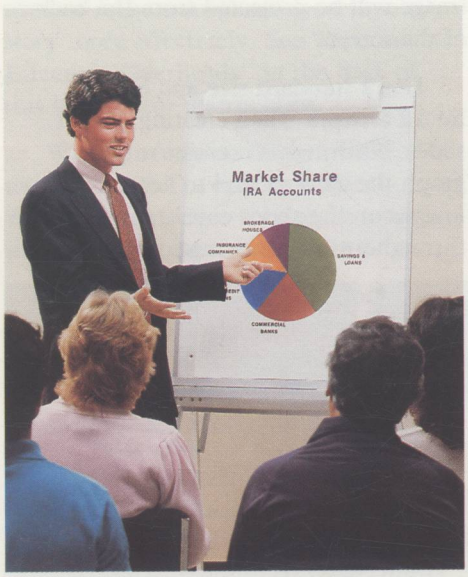
For television graphics

Television is a special medium, having many restrictions that are not encountered in other media. If you are preparing charts that will be used in teleconferences or other video broadcasts, ask for specific guidelines from people who will be producing the show. Also, keep these things in mind when planning charts for television.

- The proportion for all television graphics is 3 units by 4 units. The format is always horizontal.
- Some of the original image will be lost during transmission. Plan for this loss; keep all important information within a "safe area" in the center of the artwork. Keep a margin equal to 1/6 of the height measured from the top and bottom of the artwork and 1/6 the width measured from both sides of the artwork around your safe area. This safe area applies to both 35mm slides and art flats that are used for television.
- For television, the maximum recommended viewing distance is 12 times the width of the screen.
- Since the size of the screen and the distance of the viewer from the screen are usually uncontrollable, it is best to keep images simple and bold.
- Good contrast is particularly important in preparing charts that will be used on television.

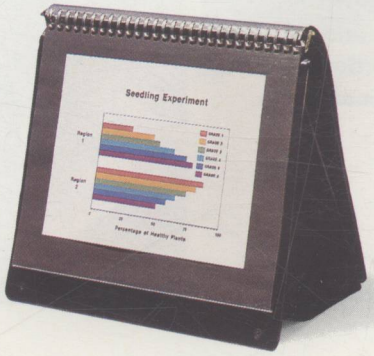


For flipcharts



Keep these guidelines in mind when preparing flipcharts.

- Large 22-inch by 34-inch charts should be used if you will be standing in front of a group. These charts use the vertical format. The pages of the chart are usually clamped to a floor easel, but can be attached to a wall or board if no easel is available.
- Small flipcharts — those that are 8-1/2 by 11 inches, 11 by 17 inches, or 17 by 22 inches — are usually supported by a tabletop easel. Depending on the type of easel you use, you may need to leave room to attach your chart to the easel.
- Since flipcharts are prepared in their original size, it is easy to check legibility. Step back from the chart to the viewing distance that you think will be maximum for the chart, then be critical. If every image is not bold and clear, go back and make the words bigger and the images bolder.

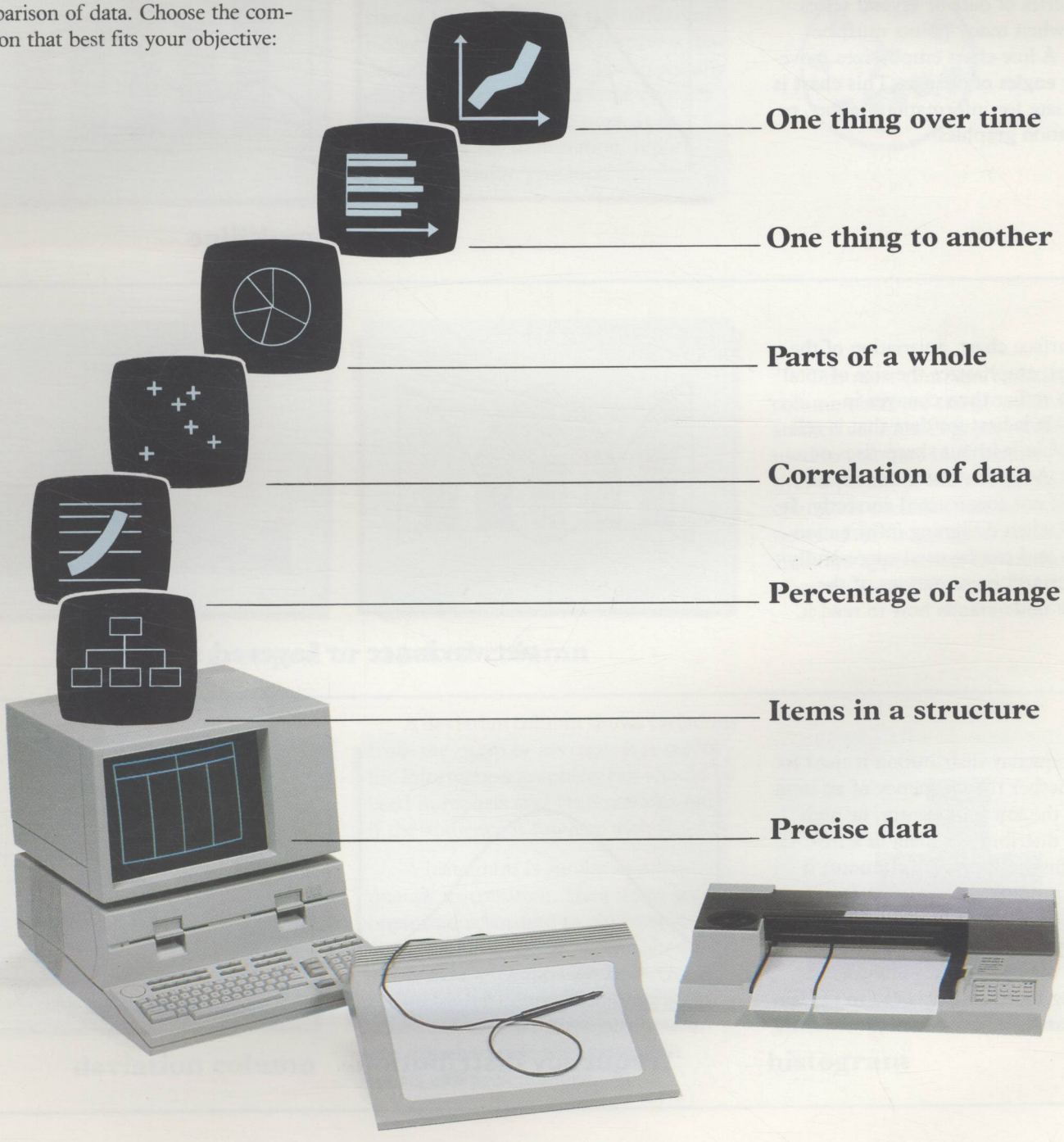


4 Choose the Right Chart

The "right chart" is the chart that helps you achieve your objective with your audience. To find the right chart, you may have to try several charts, editing and manipulating each until you find the chart that is right.

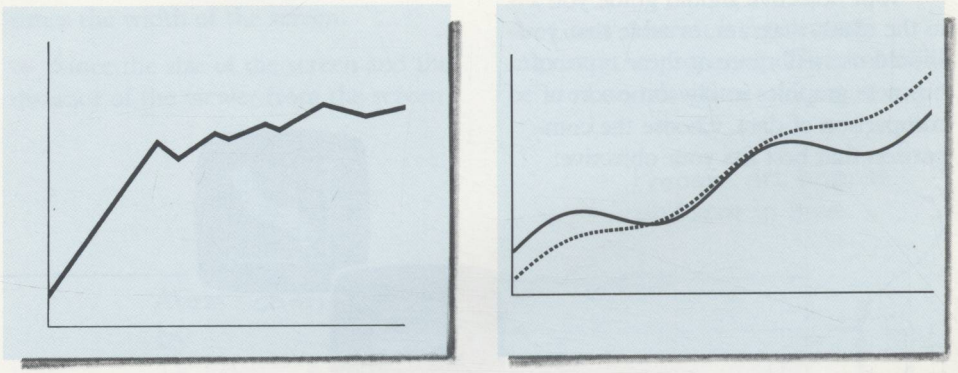
Determine the comparison that will help your audience reach the objective.

Your objective should guide you to the chart, diagram, or table that you should use. All three of these types of business graphics imply some sort of comparison of data. Choose the comparison that best fits your objective:



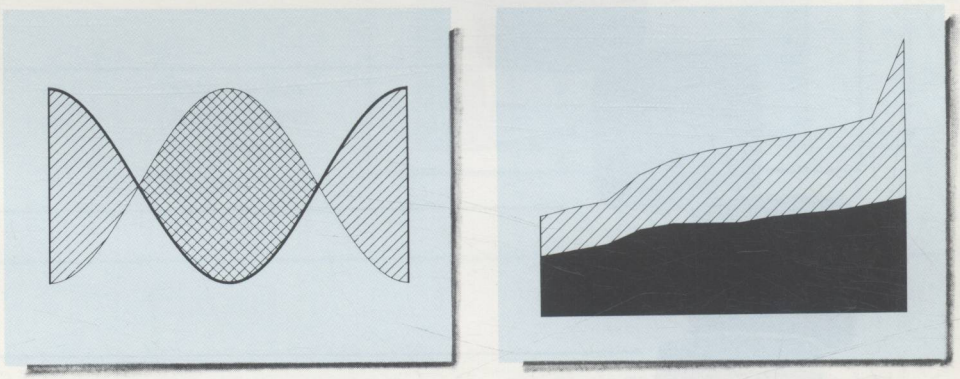
If comparing one thing over time — choose a line or column chart.

A line chart is best when plotting a long series of data or several series of data when many points must be plotted. A line chart emphasizes movement or angles of change. This chart is appropriate for information, report, or presentation graphics.



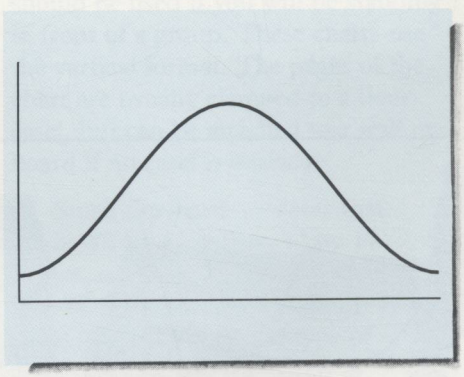
single or multiline

A surface chart, a variation of the line chart, emphasizes the size of total amounts rather than changes in amount. It is best for data that is relatively stable, without sharp rises or declines. A surface chart can be misleading if not constructed correctly. It is useful when designing information graphics and can be used successfully in reports and presentations, if the audience understands how to read it.



net variance or layered surface

A frequency distribution is used to show whether the frequency of an item peaks at the low end, center, or high end of a distribution. Data in a frequency distribution is continuous; it can't be grouped in classes. A frequency distribution is useful for information graphics. Use it with caution in reports and presentations, realizing that you may need to explain this chart to your audience.



frequency distribution