THE MINTO PYRAMID PRINCIPLE

LOGIC IN WRITING, THINKING AND PROBLEM SOLVING

BARBARA MINTO

The Minto Pyramid Principle: Logic in Writing, Thinking and Problem Solving

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"There is nothing so useful as a good theory."

KURT LEWIN

PREFACE

In 1973 I published a set of six booklets called "The Pyramid Principle" that talked about a new way of tackling the problem of unclear report writing, particularly in consulting reports. It said, in effect, that clear writing was easy to recognize because it had a clear pyramidal structure, while unclear writing always deviated from that structure.

The ideas within the pyramid relate in a limited number of logical ways (up, down, and sideways), making it possible to define general rules about them. Thus, the key to clear writing is to structure your thinking into a pyramid and check it against the rules before you begin to write.

These ideas were developed while I was working for McKinsey & Company, the international management consulting firm, first in Cleveland and then in London. McKinsey had hired me in 1963 as their first female consultant, selected from the group of eight pioneering women permitted to attend the Harvard Business School that year. McKinsey rapidly concluded that I was hopeless with numbers, but a capable writer. Consequently, they moved me to London to work with Europeans who were faced with the task of writing reports in English.

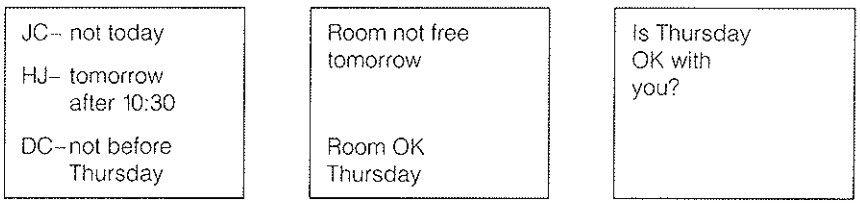
Interestingly, when I began researching material on report writing, I discovered that while there were an enormous number of books on how to write better sentences and paragraphs, there were no books on how to organize the thinking those sentences and paragraphs are meant to convey. Any book that did touch on the subject said things like "Be logical" or "Have a logical outline." How in the world do you

tell a logical outline from an illogical one, I wondered, and set myself the task to find out. What I discovered was the pyramid.

The pyramid structure is applicable to any document in which your purpose is to present your thinking clearly. To demonstrate, here's a very simple example of a "before" and "after":

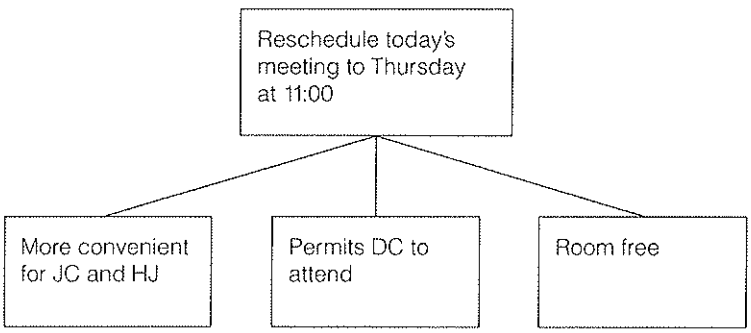
Points ordered as they occur to the writer:

John Collins telephoned to say that he can't make the meeting at 3:00. Hal Johnson says he doesn't mind making it later, or even tomorrow, but not before 10:30, and Don Clifford's secretary says that Clifford won't return from Frankfurt until tomorrow, late. The Conference Room is booked tomorrow, but free Thursday. Thursday at 11:00 looks to be a good time. Is that OK for you?



Points ordered by a pyramid

Could we reschedule today's meeting to Thursday at 11:00? This would be more convenient for Collins and Johnson, and would also permit Clifford to be present. It is also the only other time this week that the conference room is free.



Few people in 1967 bought this concept, but very good minds were available at McKinsey to tell me where it fell short and to help me to get it right. Today the Minto Pyramid Principle serves as the McKinsey Firm standard, and is acknowledged to be an essential part of the Firm's fabric.

I left McKinsey in 1973 to teach the ideas more widely, and have now taught them to perhaps 10,000 people throughout the world, both in consulting firms and in indi-

vidual companies. I have also published two previous editions of this book (in 1981 and 1987), and developed a video course (1981) and a computer software program (1985). And I will this year complete a new version of the video course.

I am delighted to say that as a result of these activities the Minto Pyramid Principle has become the de facto standard in consulting, and the basic pyramid concept has been picked up and incorporated into courses taught in many other places.

The continuing experience of teaching, and the recent work to develop the new video, have of course brought new insights and allowed me to develop and expand various parts of the original concept. I have also seen that the pyramid concept can serve a much wider function than simply helping to organize and present thinking in writing. It can extend backward to embrace the process for defining and analyzing problems, and forward to guide the management of the entire writing process.

Hence this new version of the book, which incorporates all of the insights and techniques for getting at one's thinking that I have worked out since 1987. It also contains new chapters on how to structure the definition and analysis of a problem, as well as how visually to present the pyramid on page and screen.

The book is in four parts.

- Part One (Logic in Writing) contains few changes. It both explains the Minto Pyramid Principle and shows you how to use it to build a basic pyramid. This section is all you need to read to be able to understand and apply the technique to simple documents.

- Part Two (Logic in Thinking) tells you how to look critically at the detail of your thinking, to make sure that the points you make actually reflect the insights inherent in the ideas you have grouped together. It gives many examples, and emphasizes the importance to clarity of forcing yourself to go through this process of "Hard-Headed Thinking."

- Part Three (Logic in Problem Solving) is completely new. It is meant mainly for people who write consulting documents or who need to do analyses of complex problems and then present their conclusions to people who must take action based on them. It explains how to use a variety of frameworks to structure your analysis at various stages in the problem-solving process, so that the thinking can be in effect pre-organized to fit easily into a pyramid structure.

- Part Four (Logic in Presentation) discusses techniques for making sure that the pyramid structure is not lost on the reader as you transfer your ideas from the pyramid, either to written prose or to slides in an oral presentation.

There are also three appendices. The first deals with the differences between analytical and scientific problem solving, while the second gives examples of various common patterns employed in writing introductions. The final appendix presents a complete outline of the points made in the book, highlighting the major concepts and thinking techniques for easy recall.

Applying the Minto Pyramid Principle still requires considerable discipline. Nevertheless, by deliberately forcing yourself to think first and write later in the manner suggested, you should be able quite dramatically to (a) cut down the time you normally need to produce a final draft, (b) increase its clarity, and (c) decrease its length. The result should be crisp, clear writing in record time.

Barbara Minto
London 1996

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INTRODUCTION TO PART 1

LOGIC IN WRITING

One of the least pleasant aspects of a professional person's job is the need to put things in writing. Almost everyone finds it a chore and wishes he were better at it. And many people are told specifically that they need to hone this skill if they want to progress.

The reason most people fail to show much improvement is that they assume that writing more clearly means writing simpler, more direct sentences. And it is often true that the sentences in their documents are overlong and unwieldy. Moreover, their language is frequently too technical or too abstract, and their paragraphs on occasion are awkwardly developed.

But these are weaknesses of *style*, and it is notoriously difficult for a person who has completed the formal part of his education to change his writing style. Not that it cannot be done; rather, it's like learning to type. It requires a good many repetitive exercises, for which most on-the-job writers in industry and government simply cannot find the time. As a result, they continue to be told they need to write "more clearly."

However, there is a second cause of unclear writing, far more pervasive than the first, and much easier to correct. This relates to the *structure* of the document—the order in which the sentences appear regardless of whether they are well or poorly written. If a person's writing is unclear, it is most likely because the ordering of the ideas conflicts with the capability of a reader's mind to process them.

The easiest order for a reader is to receive the major, more abstract ideas before he is required to take in the minor, supporting ones. And since the major ideas are always derived from the minor ones, the ideal structure of the ideas will always be a

pyramid of groups of ideas tied together by a single overall thought. Within that pyramidal structure, the ideas will relate *vertically*—in that a point at any level will always be a summary of the ideas grouped below; and *horizontally*—in that the ideas will have been grouped together because together they present a logical argument.

You can very easily communicate to a reader the ideas arranged in a pyramidal form by simply starting at the top and moving down each leg of the pyramid. The statement of the major ideas causes the reader to question the writer's basis for making the point, and the next level down in the pyramid answers that question. You then continue the question/answer dialogue until you have communicated all the ideas to the reader.

This question/answer response to stated ideas appears to be automatic in everyone, regardless of nationality. Also true of each of us is the fact that we cannot know what we think precisely until we have symbolized it in some way, either by saying it out loud or writing it down. Fortunately, it turns out that the structure required to clarify a person's thinking to himself is also a pyramid. Thus, the writer who forces himself to structure his thinking into a pyramid also finds that he has so clarified the thinking that he can easily write clear, direct sentences.

This first section of the book explains why a reader responds best to a pyramid structure, and how the logical substructures that make up that pyramid interact. It tells you how to use this knowledge to identify the ideas you need to include in a particular document, and to work out a clear relationship between them. It also gives a detailed analysis of the logic of introductions, and dispels the confusion that may surround your understanding of deductive and inductive argument.

At the end, you will understand the basics of how to form your thinking into a simple pyramid structure. Subsequent sections will explain the subtleties of using the pyramid rules to check that the points you include in the pyramid are indeed valid, coherent, and complete, and to help you discover your unarticulated ideas, which can lead to moving your thinking forward creatively.

THE MINTO PYRAMID PRINCIPLE

PART ONE
LOGIC IN WRITING

1
WHY A PYRAMID STRUCTURE

The person who seeks to learn what you think about a particular subject by reading what you have to say about it faces a complex task. Even if your document is a short one—say only about 2 single-spaced pages—it will contain roughly 100 sentences. He must take in each of these, digest them, relate them, and hold them together. He will invariably find the job easier if they come to him as a pyramid, beginning at the top and working downward. This conclusion reflects some fundamental findings about the way the mind works. Specifically:

- The mind automatically sorts information into distinctive pyramidal groupings in order to comprehend it.
- Any grouping of ideas is easier to comprehend if it arrives presorted into its pyramid.
- This suggests that every written document should be deliberately structured to form a pyramid of ideas.

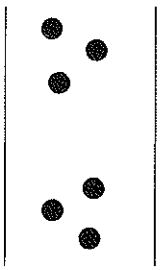
The sections following explain what I mean by a pyramid of ideas.

2

SORTING INTO PYRAMIDS

That the mind automatically imposes order on everything around it has long been recognized. Essentially, it tends to see any sequence of things that occur together as belonging together, and therefore sets about imposing a logical pattern on them. The Greeks, for example, demonstrated this tendency by looking up at the stars and seeing outlines of figures instead of pinpoints of light.

The mind will group together any series of items that it sees as having a "common fate"—because they share similar characteristics or are near the same place. Take these six dots for example:



When looking casually at them, everyone sees two groups of three dots each, primarily because some of the distances between the dots are smaller than others.

The value of seeing things in logical units is, of course, immense. To demonstrate, read the following pairs of nouns,* which are normally not related to each other.

LAKE	■	SUGAR
BOOT	■	PLATE
GIRL	■	KANGAROO
PENCIL	■	GASOLINE
PALACE	■	BICYCLE
RAILROAD	■	ELEPHANT
BOOK	■	TOOTHPASTE

Now try to "organize" them by picturing a situation in which each one might be associated—such as the sugar being dissolved in the lake or the boot sitting on the plate. Then cover up the list on the right-hand side and try to remember them through reading the list on the left-hand side. Most people find that they can recall them all without hesitation.

The same organizing phenomenon takes place when you are either listening to or reading ideas. You assume the ideas that appear together, one after the other, belong

* Based on a series given in *Gestalt Psychology* by Wolfgang Kohler (Liveright Publishing: New York) 1970.

together, and attempt to impose a logical pattern on them. The pattern will always be that of a pyramid because this is the only form that meets your mind's need to

- Stop at the magical number seven
- State the logic of the relationship.

The Magical Number Seven

There is a limit to the number of ideas you can comprehend at any one time. For example, think of deciding to leave your warm, comfortable living room to buy a newspaper. "I think I'll go out and get the paper," you say to your wife. "Is there anything you want while I'm out?"

> "Gosh, I have such a taste for grapes after all those ads on television," she says as you walk toward the closet to get your coat, "and maybe you ought to get some more milk."
>
> *You take your coat from the closet as she walks into the kitchen.*
>
> "Let me look in the cupboard to see if we have enough potatoes and, oh yes, I know we're out of eggs. Let me see, yes, we do need potatoes."
>
> *You put on your coat and walk toward the door.*
>
> "Carrots and maybe some oranges."
>
> *You open the door.*
>
> "Butter."
>
> *You walk down the stairs.*
>
> "Apples."
>
> *You get into the car.*
>
> "And sour cream."
>
> "Is that all?"
>
> "Yes, dear, thank you."

Now, without reading the passage over, can you remember any of the nine items your wife asked you to buy? Most men come back with the newspaper and the grapes.

The major problem is that you've run into the magical number seven. This is a phrase coined by George A. Miller in his treatise, "The Magical Number Seven, Plus or Minus Two."* What he points out is that the mind cannot hold more than about seven items in its short-term memory at any one time. Some minds can hold as many as nine items, while others can hold only five (I'm a five myself). A convenient number is three, but of course the easiest number is one.

What this means is that when the mind sees the number of items with which it is being presented begin to rise above four or five, it starts to group them into logical

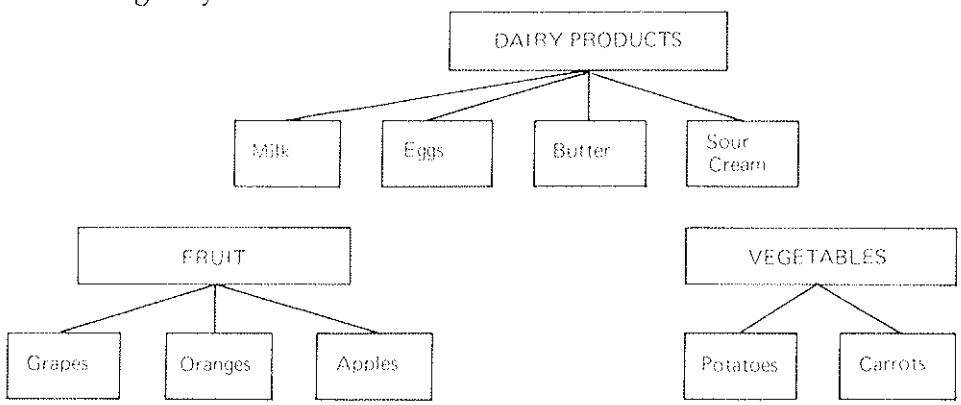
* Miller, George A. *The Psychology of Communication: Seven Essays* (Basic Books: Pa.) 1967.

categories so that they can be retained. In this case, it would probably put the items into categories that reflect the sections of the supermarket you would need to visit.

To demonstrate how this helps, read the list below and categorize each idea in this way as you come to it. You will very likely find that you remember them all.

GRAPES	ORANGES
MILK	BUTTER
POTATOES	APPLES
EGGS	SOUR CREAM
CARROTS	

If you try to visualize this process, you will see that you have created a set of pyramids of logically related items.



The Need to State the Logic

Now clearly, it is not enough simply to group the ideas in a logical way without also stating to yourself what the logic of the relationship is. The point in grouping was not just to move from a set of nine items to separate sets of four, two, and three items. That still comes to nine. What you want to do is move *above* the nine, to three.

This means that instead of remembering each of the nine items, you remember only the three categories into which they fall. You are thinking one level of abstraction higher, but because the thought is at a higher level, it suggests the items below it. And, because the relationship is not a contrived one as was the case in the exercise about the lake and the sugar, it is much easier to keep in mind.

All mental processes (e.g., thinking, remembering, problem solving) apparently utilize this grouping and summarizing process, so that the information in a person's mind might be thought of as being organized into one giant conglomeration of related pyramids. If you think about communicating to that mind, you can see that the problem is one of ensuring that what you say will fit somewhere into the existing pyramids.

Now we come to the real problem of communicating. You can "see" these groupings of items quite clearly. To communicate them means to ensure that the other person "sees" them in the same way. But, as was the case with your wife, you can only present them one by one. Surely, the most efficient way to do this would be to present the category first and then the items. That is, to order the ideas from the top down.

ORDERING FROM THE TOP DOWN

Controlling the sequence in which you present your ideas is the single most important act necessary to clear writing. The clearest sequence is always to give the summarizing idea before you give the individual ideas being summarized. I cannot emphasize this point too much.

Remember that the reader (or listener) can only take the sentences in one at a time. You know he will assume that those ideas that appear together logically belong together. If you do not tell him in advance what the relationship is, but simply give the ideas one at a time, he will automatically look for similarities by which he can group the points being expressed, so that he can explain to himself the significance of the groupings.

Alas, people being as diverse in background and understanding as they are, they rarely put exactly the same interpretation on your groupings as you do. Indeed, they not infrequently find that they can't see any relationship at all between the ideas in a set. Even if they think exactly as you do, you are making their reading more difficult, since they must supply what is unstated.

Let me demonstrate how confusing any order other than top down is with an example. Suppose I join you to have a beer in the pub and, apropos of nothing in particular, say:

> I was in Zurich last week—you know what a conservative city Zurich is—and we went out to lunch at an outdoor restaurant. Do you know that within 15 minutes I must have seen 15 people with either a beard or a moustache.

Now, I have given you a piece of information, and without realizing it you will automatically make some assumptions about the reason for my giving you that information. In other words, you will see this statement as part of a group of ideas not yet expressed, and prepare your mind to receive the rest by assuming a probable purpose behind the statement. This expectancy reduces the strain of analyzing each

succeeding idea for all its attributes; you look only for the one in common with what has gone before.

Thus, you might think such things as, "She's talking about how unconservative Zurich is getting," or "She's going to compare Zurich with other cities," or even, "She's hung up on beards and moustaches." Regardless of what reaction you have, the point is that your mind is waiting for further information on one of those same subjects, whatever it turns out to be. Seeing that blank look on your face, I then go on to say:

> And you know, if you walk around any New York office you can rarely find even one person who doesn't have sideburns or a moustache.

Now what am I getting at? I seem to be comparing not cities as such, but office workers in cities; and instead of just beards and moustaches I seem to be including all manner of facial hair. "Probably," you're thinking, "she disapproves of the hairy style. Or maybe she's going to compare the styles in various offices. Or maybe she's surprised at the amount tolerated in professional firms." In any case, you mutter something noncommittal in reply, and thus encouraged I go on to state:

> And of course facial hair has been a part of the London scene for years.

"Ah," you think, "at last I see what she's getting at. She's trying to make the point that London is ahead of all the other cities," and you tell me so. Perfectly logical, but it's wrong; that's not what I was getting at at all. In fact, what I was getting at was this:

> You know, it's incredible to me the degree to which facial hair has become such an accepted part of business life.
>
> > In Zurich . . .
> > In New York . . .
> > And of course in London . . .

See how much more easily you can comprehend the group of ideas in the way I mean you to once the framework within which to judge the relationship between them has been given to you? The reader is always going to look for a structure connecting the ideas as they come to him. To make sure he finds the one you intended, you must tell him in advance what it is—to make sure he knows what to look for. Otherwise he is likely either to see an unintended relationship, or worse, none at all, in which case you have both wasted your time.

As an example of this latter situation, look at the main points of the opening paragraphs of an article on equal pay for women:

> Granted equal pay, women could finish off worse than before—i.e., there could be a wider rather than narrower gap between average earnings of women and men than today.
>
> > Equal pay means either equal pay for the same job or equal pay for equal value of work (to the employer).
> >
> > Applying either interpretation means either
> >
> > > Compelling employers to act in their own self-interest, or
> > > Ending restrictive practices by male workers.

Here you are given five ideas between which the connecting relationship is unclear, despite the fact that the author has "started at the top," as he sees it. Can you not feel your mind scrabbling about trying to find a relationship, coming to the conclusion that there is none, and giving up in disgust? The mental strain is simply too great.

Alas, a reader, no matter how intelligent, has only a limited amount of mental energy available. Some of it will be used up just recognizing and interpreting the words he reads, a further amount seeing the relationships between the ideas, and whatever is left comprehending their significance.

You can economize his need to spend time on the first two activities by presenting the ideas so that they can be comprehended with the least possible mental effort. To sequence them instead so that the mind has to go backward and forward to make connections is simply bad manners, and most readers react by refusing to do so.

To summarize, a reader groups and summarizes ideas as a matter of course in order to remember them. He comprehends ideas presented to him more readily if they are also grouped and summarized, and presented from the top down. All of this suggests that the clearest written documents will be those that consistently present their information from the top down, in a pyramidal structure, even though the original thinking will have been done from the bottom up.

THINKING FROM THE BOTTOM UP

If you are going to group and summarize all your information and present it in a top-down manner, it would seem your document would have to look something like the structure opposite. The boxes stand for the individual ideas you want to present, with your thinking having begun at the lowest level by forming sentences that you grouped logically into paragraphs. You then grouped the paragraphs into sections, and the sections into the total memorandum represented by a single thought at the top.

If you think for a moment about what you actually do when you write, you can see that you develop your major ideas by thinking in this bottom-up manner. At the very lowest level in the pyramid, you group together sentences, each containing an individual idea, into paragraphs.

Let us suppose you bring together six sentences into one paragraph. The reason you bring together those six sentences and no others will clearly be that you see a logical relationship between them. And that logical relationship will always be that they are all needed to explain or defend the single idea of the paragraph, which is effectively a summary of them. You would not, for example, bring together five sentences on finance and one on tennis, because their relevance to each other would be difficult to express in a single summary sentence.

Stating this summary sentence moves you up one level of abstraction and allows you to think of the paragraph as containing one point rather than six. With this act of efficiency you now group together, say, three paragraphs, each containing a single thought at a level of abstraction one step higher than that of the individual sentences.

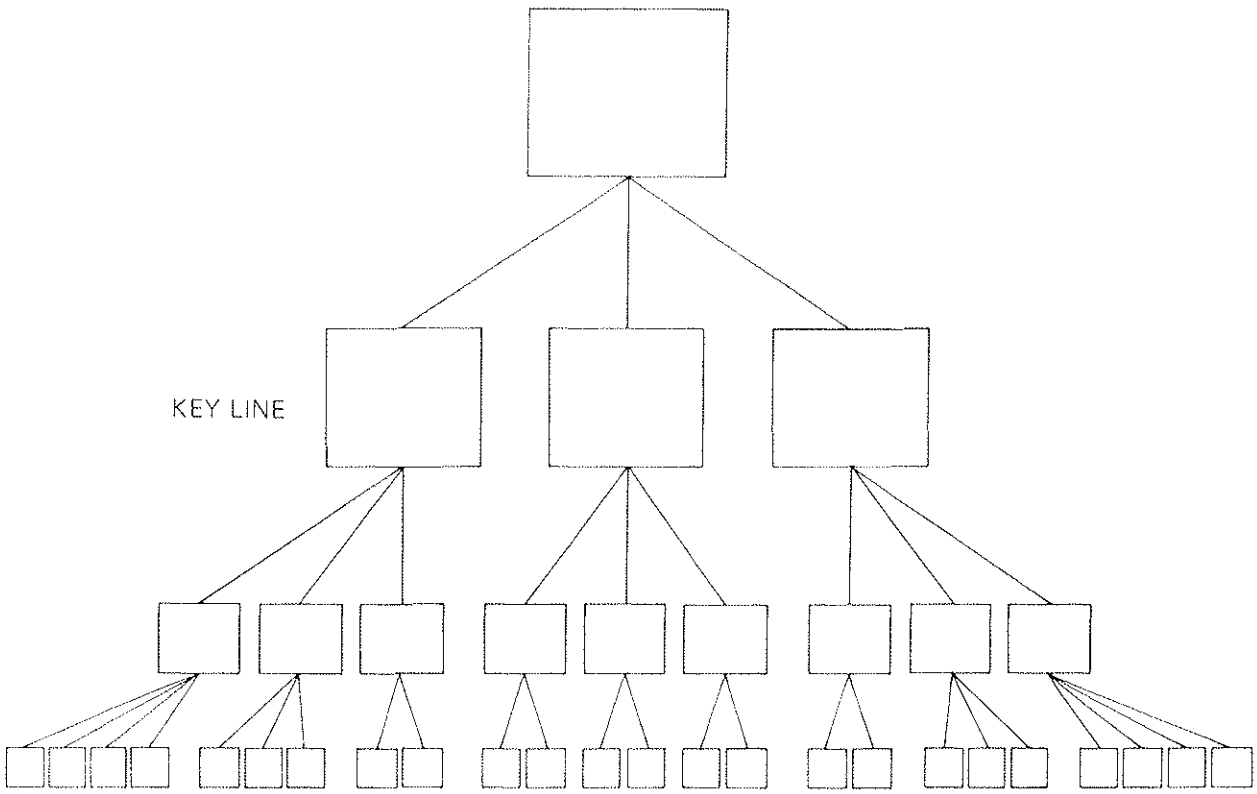
The reason you form a section out of these three paragraphs, and no others, is also that you see a logical relationship between them. And the relationship is once again that they are all needed to explain or defend the single idea of the section, which again will be a summary of the three ideas in the paragraphs below them.

Exactly the same thinking holds true in bringing the sections together to form the document. You have three sections grouped together (each of which has been built up from groups of paragraphs, which in turn have been built up from groups of sentences) because they are all needed to support the single idea of the memorandum, which in turn is a summary of them.

Since you will continue grouping and summarizing until you have no more relationships to make, it is clear that every document you write will always be structured to support only one single thought—the one that summarizes your final set of groupings. This should be the major point you want to make, and all the ideas grouped

underneath—provided you have built the structure properly—will serve to explain or defend that point in ever greater detail.

Exhibit 1 *Ideas in writing should always form a pyramid under a single thought*



Fortunately, you can define in advance whether or not you have built the structure properly by checking to see whether your ideas relate to each other in a way that permits them to form pyramidal groups. Specifically, they must obey three rules:

1. Ideas at any level in the pyramid must always be summaries of the ideas grouped below them.
2. Ideas in each grouping must always be the same kind of idea.
3. Ideas in each grouping must always be logically ordered.

Let me explain why these rules "must always" apply:

1. Ideas at any level in the pyramid must always be summaries of the ideas grouped below them. The first rule reflects the fact that the major activity you carry out in thinking and writing is that of abstracting to create a new idea out of the ideas grouped below. As we saw above, the point of a paragraph is a summary of its sentences, just as the point of a section is a summary of the points of its paragraphs, etc.

However, if you are going to be able to draw a point out of the grouped sentences or paragraphs, these groupings must have been properly formed in the first place. That's where rules 2 and 3 come in.

2. Ideas in each grouping must always be the same kind of idea. If what you want to do is raise your thinking only one level of abstraction above a grouping of ideas, then the ideas in the grouping must be logically the same. For example, you can logically categorize apples and pears one level up as fruits; you can similarly think of tables and chairs as furniture. But what if you wanted to group together apples and chairs? You cannot do so at the very next level of abstraction, since that is already taken by fruit and furniture. Thus, you would have to move to a much higher level and call them "things" or "inanimate objects," either of which is far too broad to indicate the logic of the grouping.

In writing you want to state the idea directly implied by the logic of the grouping, which means that ideas in the grouping must all fall into the same logical category. Thus, if the first idea in a grouping is a reason for doing something, the other ideas in that grouping must also be reasons for doing the same thing. If the first idea is a step in a process, the rest of the ideas in the grouping must also be steps in the same process. If the first idea is a problem in the company, the others in the grouping must be related problems, and so on.

A shortcut in checking your groupings is to be sure that you can clearly label the ideas with a plural noun. Thus, you will find that all the ideas in the grouping will turn out to be things like recommendations, or reasons, or problems, or changes to be made. There is no limitation on the kinds of ideas that may be grouped, but the ideas in each grouping must be of the same kind, able to be described by one plural noun. How you make sure you get like kinds of ideas grouped together each time is explained more fully in Part Two, Chapters 6 and 7.

3. Ideas in each grouping must always be logically ordered. That is, there must be a specific reason why the second idea comes second, and cannot come first or third. How you determine proper order is explained in detail in Chapter 6, *Imposing Logical Order.* Essentially it says that there are only four possible logical ways in which to order a set of ideas:

- Deductively (major premise, minor premise, conclusion)
- Chronologically (first, second, third)

– Structurally (Boston, New York, Washington)

– Comparatively (first most important, second most important, etc.)

The order you choose reflects the analytical process you used to form the grouping. If it was formed by reasoning deductively, the ideas go in argument order; if by working out cause-and-effect relationships, in time order; if by commenting on an existing structure, the order dictated by the structure; and if by categorizing, order of importance. Since these four activities— reasoning deductively, working out cause-and-effect relationships, dividing a whole into its parts, and categorizing— are the only analytical activities the mind can perform, these are the only orders it can impose.

Essentially, then, the key to clear writing is to slot your ideas into this pyramidal form and test them against the rules before you begin to write. If any of the rules is broken, it is an indication that there is a flaw in your thinking, or that the ideas have not been fully developed, or that they are not related in a way that will make their message instantly clear to the reader. You can then work on refining them until they do obey the rules, thus eliminating the need for vast amounts of rewriting later on.

2 THE SUBSTRUCTURES WITHIN THE PYRAMID

As Chapter 1 explained, a clear piece of writing establishes a rigid set of relationships between its ideas, so that they will form a comprehensive pyramidal structure (see Exhibit 1). It then presents the ideas to the reader, starting at the top and working down each leg.

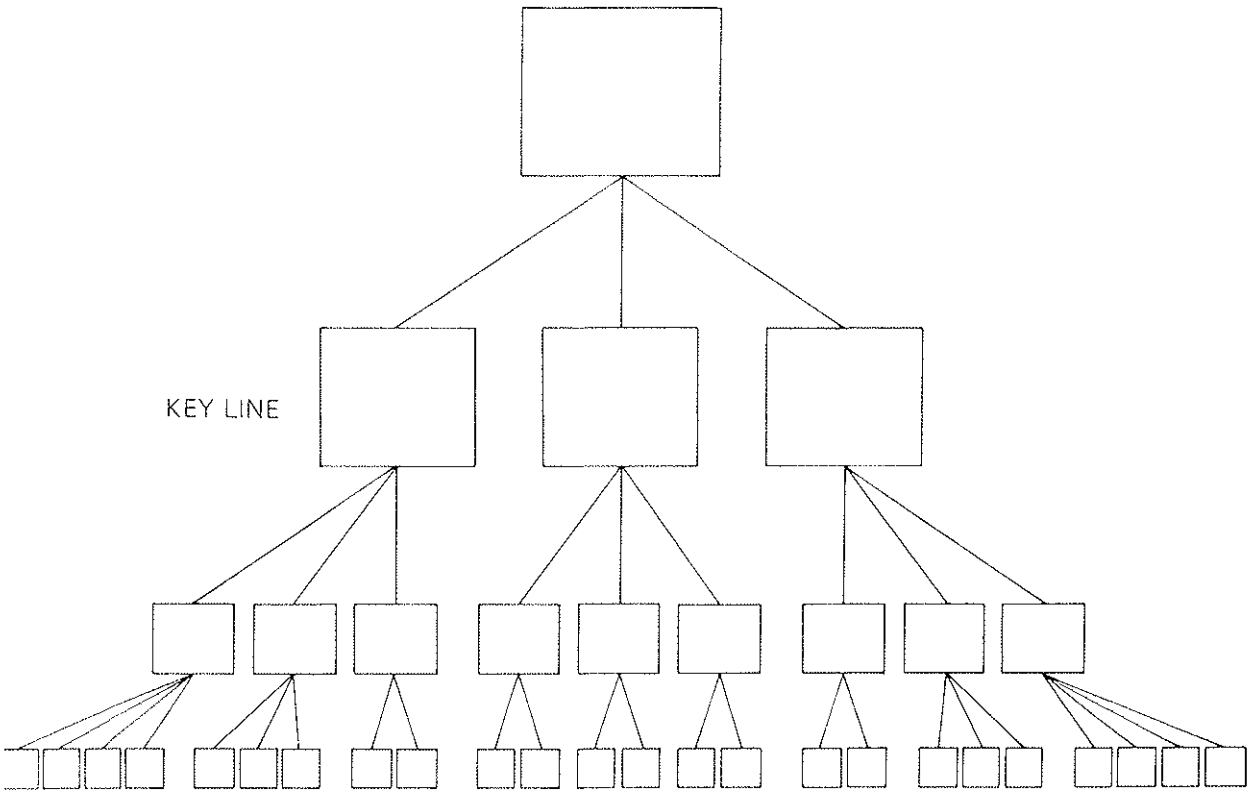
Because of the specificity of the pyramid rules, if you know what your ideas are before you begin to write, you can relatively easily form them into a proper pyramid. Most people when they sit down to write, however, have only a hazy notion of their ideas (if that). Nor should they expect much more. You cannot know precisely what you think until you have been forced to symbolize it—either by saying it out loud or by writing it down—and even then the first statement of the idea is likely to be less precise than you can eventually make it.

Consequently, you cannot hope just to sit down and start arranging your ideas into a pyramid. You have to discover them first. But the pyramid dictates a set of substructures that can serve to speed the discovery process. These are:

- The vertical relationship between points and subpoints
- The horizontal relationship within a set of subpoints
- The narrative flow of the introduction.

Let me explain the exact nature of these relationships and then, in Chapter 3, tell you how to use them to discover, sort, and arrange your ideas so that they will be clear, first to yourself and then to your reader.

Exhibit 1 *Ideas in writing should always form a pyramid under a single thought*



THE VERTICAL RELATIONSHIP

Some of the most obvious facts in the world take years to work their way into people's minds. A good example is what happens when you read. Normal prose is written one-dimensionally, in that it presents one sentence after another, more or less vertically down the page. But that vertical follow-on obscures the fact that the ideas occur at various levels of abstraction. Thus, any idea below the main point will always have both a vertical and a horizontal relationship to the other ideas in the document.

The vertical relationship serves marvelously to help capture the reader's attention. It permits you to set up a question/answer dialogue that will pull him with great interest through your reasoning. Why can we be so sure the reader will be interested? Because he will be forced to respond logically to your ideas.

What you put into each box in the pyramid structure is an idea. I define an idea as a statement that raises a question in the reader's mind because you are telling him something he does not know. (Since people do not generally read to find out what they already know, it is fair to state that your primary purpose in communicating your thinking will always be to tell people what they do not know.)

Making a statement to a reader that tells him something he does not know will automatically raise a logical question in his mind—for example, Why? or How? or Why do you say that? You as the writer are now obliged to answer that question horizontally on the line below. In your answer, however, you will still be telling the reader things he does not know, so you will raise further questions that must again be answered on the line below.

You will continue to write, raising and answering questions, until you reach a point at which you judge the reader will have no more logical questions. (The reader will not necessarily agree with a writer's reasoning when he's reached this point, but he will have followed it clearly, which is the best any writer can hope for.) The writer is now free to leave the first leg of the pyramid and go back up to the Key Line to continue answering the original question raised by the point in the top box.

The way to ensure total reader attention, therefore, is to refrain from raising any questions in the reader's mind before you are ready to answer them. Or from answering questions before you have raised them. For example, any time a document presents a section captioned "Our Assumptions" before it gives the major points, you can be sure the writer is answering questions the reader could not possibly have had an opportunity to raise. Consequently, the information will have to be repeated (or reread) at the relevant point in the dialogue.

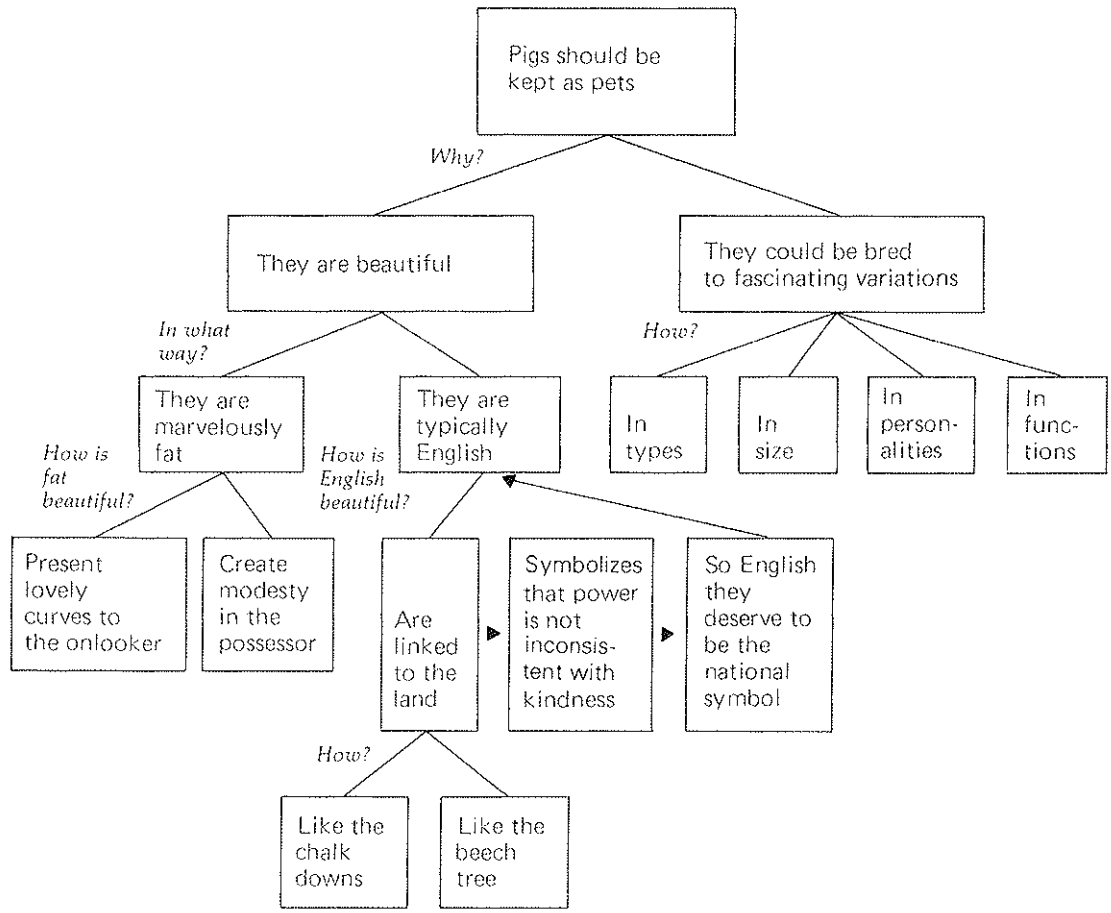
The pyramid structure almost magically forces you to present information only as the reader needs it. Let me take you through a couple of examples. Exhibit 2 displays a humorous one, from an article by G. K. Chesterton. I chose it because it will give you an idea of how the vertical question/answer technique works to hold the reader's attention without burdening you with the need to think about the horizontal logic of the content.

Chesterton says that pigs should be kept as pets; the reader asks Why? Chesterton says, "For two reasons: First, they are extremely beautiful, and second, they could be bred to fascinating variations."

Reader: What makes you say pigs are beautiful?

Chesterton: They're beautiful because they're marvelously fat and they're typically English.

Exhibit 2 *The pyramid structure establishes a question/answer dialogue*



Reader: What's beautiful about being fat?

Chesterton: It presents lovely curves to the onlooker and it creates modesty in the possessor.

Now at this point, while you clearly do not agree with Chesterton's argument, you can at least see what it is. It is clear to you *why* he says what he says, and there are no further questions required to reveal his reasoning. Consequently, he can move on to the next leg of his argument—that pigs are beautiful because they are typically English.

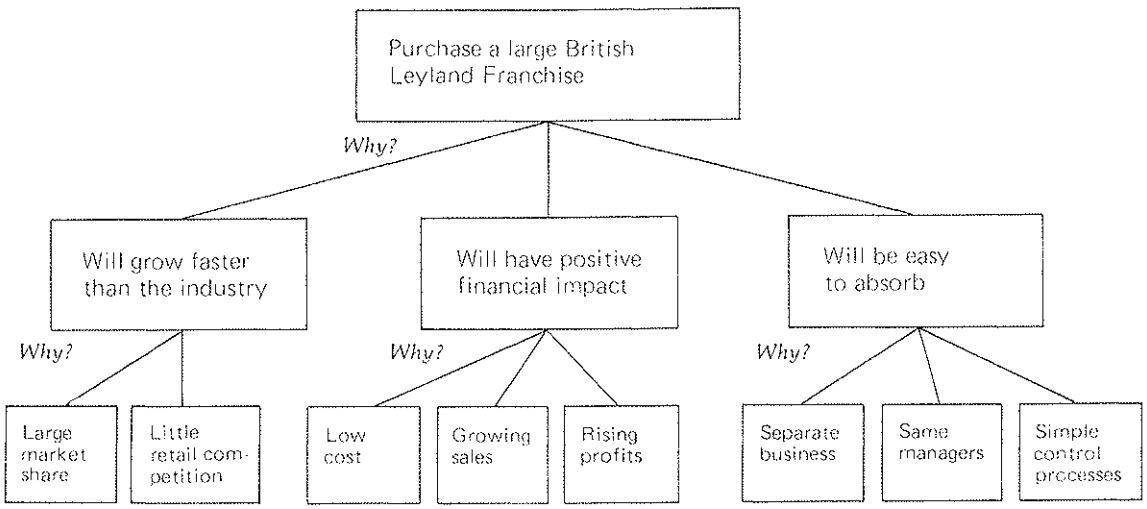
Reader: Why is typically English beautiful?

Chesterton: Pigs are linked to the land; this link symbolizes that power is not inconsistent with kindness; that attitude is so English and so beautiful that they deserve to be the national symbol.

Again, you may have a certain prejudice against the sentiment, but it is clear to you why he says what he says. And it is clear because the grouping of ideas sticks to doing its job of answering the question raised by the point above. The last section, about variations, enters the mind equally clearly.

You can see this same technique at work in a piece of business writing (Exhibit 3). Here we have the structure of a 20-page memorandum recommending the purchase of a British Leyland franchise (several years ago, obviously). It is a good buy for three reasons, and underneath each reason is the answer to the further question raised in the reader's mind by making this point. The reasoning is so clearly stated that the reader is in a position to determine whether he disagrees with the writer's reasoning, and to raise logical questions concerning it.

Exhibit 3 *All documents should reflect the question/answer dialogue*



To summarize, then, a great value of the pyramid structure is that it forces visual recognition of the vertical question/answer relationship on you as you work out your thinking. Any point you make must raise a question in the reader's mind, which you must answer horizontally on the line below.

THE HORIZONTAL RELATIONSHIP

In deciding what to say on the line below, not only must the points you include answer the question raised by the point above, they must also answer it logically. That is, they must present a clear inductive or deductive argument, one or the other, but not both at once. These are the only two types of logical relationship possible in a grouping.

A deductive grouping presents an argument in successive steps. That is, the first idea makes a statement about a situation that exists in the world today. The second idea comments on the subject or the predicate of that statement, and the third idea states the implication of those two situations existing in the world at the same time. Thus, the grouping would have the following form:

- ¶ Men are mortal.
- ¶ Socrates is a man.
- ¶ Therefore Socrates is mortal.

To move up a level of abstraction from a deductive grouping, you summarize the argument, with your summary resting heavily on the final point: "Because Socrates is a man he is mortal."

An inductive grouping, by contrast, will take a set of ideas that are related simply by virtue of the fact that you can describe them all by the same plural noun (reasons for, reasons against, steps, problems, etc.). The form of this argument would be:

- ¶ French tanks are at the Polish border.
- ¶ German tanks are at the Polish border.
- ¶ Russian tanks are at the Polish border.

To move upward here, you draw an inference based on your assessment of what is the same about the points—i.e., they are all warlike movements against Poland. Thus, your inference would be something like "Poland is about to be invaded by tanks."

If you choose to answer the question raised by an idea deductively, you know you must have an argument in which the second point comments on the subject or predicate of the first, and the third point draws a "therefore" from the previous two. If you choose to answer inductively, you know the ideas in the grouping must be logically alike and can be designated by a plural noun.

Given this knowledge, you could start to build your pyramid anywhere, with a single idea, adding the other ideas as they are demanded—either up or down or sideways. But there is one more thing you need to know before you venture off to build a pyramid of your own. And that is the beginning question to which your document must give the answer. You determine that by tracing the narrative flow of the introduction.

THE INTRODUCTORY FLOW

We saw earlier that the pyramid structure permits you to carry on a question/answer dialogue with your reader. This question/answer dialogue cannot be counted on to engage his interest unless the statement that starts it off is relevant to him. The only way you can be confident of its relevance is to make sure that it directly answers a question you have identified as already existing in his mind.

I also said earlier that you write primarily to tell people what they don't know. But a reader wants to find out what he doesn't know only if he needs to do so. If he has no need, he will have no question, and vice versa.

Thus, you make sure your document is of interest by directing it toward answering a question that already exists in the reader's mind, or that would exist if he thought for a minute about what is going on around him. The introduction identifies that question by tracing the history of its origin.

Since this history will be in the form of a narrative of events, it should follow the classic narrative pattern of development. That is, it should begin by establishing for the reader the time and place of a Situation. In that Situation something will have occurred (known as the Complication) that caused him to raise (or would cause him to raise) the Question to which your document will give him the Answer.

This classic pattern of story-telling—Situation, Complication, Question, Answer—permits you to make sure that you and the reader are "standing in the same place" before you take him by the hand and lead him through your reasoning. It also gives you a clear focus for the point at the top of your document, and thus a means of judging that you are conveying the right message in the most direct way.

To illustrate, here is an introduction of the kind normally seen in business:

> The purpose of this memorandum is to pull together some ideas for further reflection and discussion in such questions as:
>
> 1. Composition of the Board and its optimum size
> 2. A conception of the broad roles of the Board and the Executive Committee, the specific responsibilities of each, and the relationship of one to the other
> 3. Making the outside Board member an effective participant
> 4. Some principles dealing with the selection of Board members and their tenure
> 5. Alternate ways for the company to get from where it is to where it wants to be in Board and Executive Committee operations.

Note how much more easily you comprehend the memorandum's purpose and message when it is forced to fit the narrative mold:

> The new organization installed in October places full authority and responsibility for running the day-to-day activities of the two divisions squarely on the shoulders of the managers of those divisions. This move frees the Board to deal entirely with the broad matters of policy and planning that are its exclusive responsibility.
>
> However, the Board has for so long oriented itself to dealing with short-term operating problems that it is not presently in a position to focus its attention effectively on long-range strategy development. Consequently, it must consider the changes needed to permit itself to do so. Specifically, we believe it should:
>
> - Relinquish responsibility for day-to-day operating matters to the Executive Committee
> - Broaden its composition to include outside members
> - Establish policies and procedures to formalize internal operation.

In summary, the introduction tells the reader, in story form, what he already knows or could reasonably be expected to know about the subject you are discussing, and thus reminds him of the question he has to which he can expect the document to give him an answer. The story sets forth the Situation within which a Complication developed that triggered the Question to which your document will now give the Answer. Once you state the Answer (the point at the top of your pyramid), it will raise a new question in the reader's mind that you will answer on the line below.

The existence of these three substructures—i.e., the vertical question/answer dialogue, the horizontal deductive or inductive logic, and the narrative introductory flow—helps you discover the ideas you need to build a pyramid. Knowing the vertical relationship, you can determine the kind of message the ideas grouped below must convey (i.e., they must answer the question). Knowing the

horizontal relationship, you can judge that the ideas you bring together convey the message logically (i.e., form a proper inductive or deductive argument). And—most important—knowing the reader's beginning question will ensure that all the ideas you do bring together are relevant (i.e., exist only because they help to answer that question).

Naturally, you want to go about applying these insights in an orderly way, and that's what Chapter 3 will tell you how to do.

3 HOW TO BUILD A PYRAMID STRUCTURE

The problem you generally face as you sit down to write is that you know roughly what you want to write about, but not specifically what you want to say or how you want to say it. This sense of uncertainty persists despite knowing that the ideas you eventually put down, whatever they be, must end up forming a pyramid.

Nevertheless, there is a good deal you *do* know about your end product that you can build on. To begin with, you know that you will have a sentence at the top of the pyramid that will have a subject and a predicate. You also know that the subject of that sentence will be the subject of your document.

In addition, you know that the sentence will serve as the answer to a question that already exists in the reader's mind. And that question will have arisen because of a situation (with which the reader is familiar) within which a complication developed (with which he is also familiar) that raised the question that caused you to need to write in the first place. You may even know roughly some of the points you want to make.

That is quite a bit to know. You can use this knowledge in building your pyramid either by starting at the top and working down, or by starting at the bottom and working up. The first way is generally easier than the second, and so should be tried first.

THE TOP-DOWN APPROACH

It is generally easier to start at the top and work down because you begin by thinking about the things that it is easiest for you to be sure of—your subject and the reader's knowledge of it, which you will remind him of in the introduction.

You don't want simply to sit down and begin writing the opening paragraph of the introduction, however. Instead, you want to use the structure of the introductory flow to pull the right points out of your head, one at a time. To do so, I suggest you follow the procedure shown in Exhibit 4 and described below.

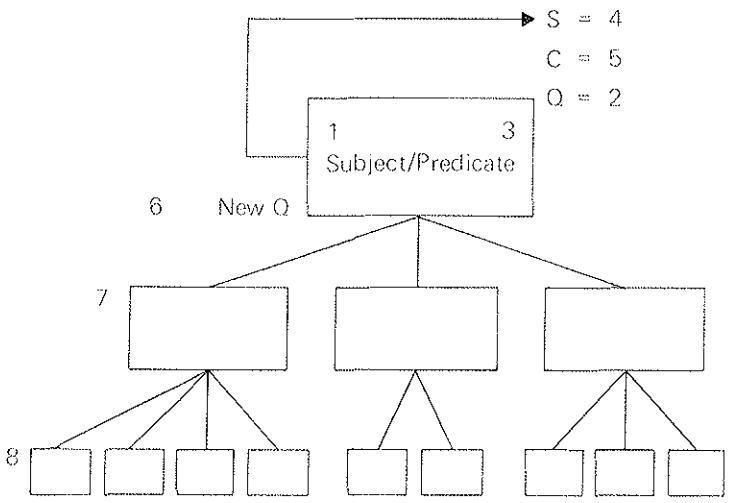
1. Draw a box. This represents the box at the top of your pyramid. Write down in it the subject you are discussing, if you know it. If not, move on to step two.

2. Decide the Question. Visualize your reader. To whom are you writing, and what question do you want to have answered in his mind about the Subject when you have finished writing? State the Question, if you know it, or go on to step four.

3. Write down the Answer, if you know it, or note that you can answer it.

4. Identify the Situation. Next you want to prove that you have the clearest statement of the Question and the Answer that you can formulate at this stage. To do that, you take the Subject, move up to the Situation, and make the first noncontroversial

Exhibit 4 *The elements of the structure check each other*



Fill in the top box

1. What Subject are you discussing?
2. What Question are you answering in the reader's mind about the Subject?
3. What is the Answer?

Match the Answer to the introduction

4. What is the Situation?
5. What is the Complication?
2. Do the Question and Answer still follow?

Find the key line

6. What New Question is raised by the Answer?
7. Will you answer it deductively or inductively?
7. If inductively, what is your plural noun?

Structure the support points

8. Repeat the question/answer process at this level.

statement about it you can make. What is the first thing you can say about it to the reader that you know he will agree is true—either because he knows it, or because it is historically true and easily checked?

5. Develop the Complication. Now you begin your question/answer dialogue with the reader. Imagine that he nods his head in agreement and says, "Yes, I know that, so what?" This should lead you to think of what happened in that Situation to raise the reader's Question. Something went wrong, perhaps, some problem arose, or some logical discrepancy became apparent. What happened in the Situation to trigger the Question?

6. Recheck the Question and Answer. The statement of the Complication should immediately raise the Question you have already written down. If it does not, then change it to the one it does raise. Or perhaps you have the wrong Complication, or the wrong Question, and must think again.

The purpose of the entire exercise is to make sure you know what Question it is you are trying to answer. Once you have the Question, everything else falls into place relatively easily.

Let me demonstrate how your thinking would develop by using the technique to rewrite the memorandum shown in Exhibit 5, on the next page. It comes from the Accounting Department of a large soft drinks company in the United States.

When the company's drivers deliver the product to a customer, they send back to the Accounting Department a delivery ticket with a set of code numbers, the date, and the amount of the delivery. These delivery tickets are the basis of the billing system, which works something like this:

FIVE WEEKS

Process ▶ delivery tickets	Send ▶ bill	Receive ▶ check	Process Payment

One of the company's customers, a hamburger emporium we'll call Big Chief, gets an awful lot of deliveries. For its own accounting purposes, it would like to keep daily track of how the bill is mounting up. It wants to know if it can't keep the delivery tickets along with each delivery, record them on a computer disk, calculate the total, and then send the disk and its check once a month to the headquarters office of the beverage company. In other words, it is proposing a system that would work like this:

ONE DAY

Receive disk ▶ and check	Process Payment

The head of the Accounting Department has been asked if the change would be feasible, and has answered in his present memorandum by saying essentially, "Here's

Exhibit 5 *The points do not answer the question*

To: Mr. Robert Salmon
From: John J. Jackson
Subject: Big Chief Date:

We have been requested to review the feasibility of processing Big Chief's (Parent Number 8306) N/A Delivery Tickets via disk into our National Accounts System. This processing is to be accomplished by Big Chief and us on a prepayment basis. We have completed our review of this request and our findings are as follows:

1. Our primary requirement for accepting any National Accounts data from an outside source is that we receive records in a prescribed format:

a. Parent Number
b. Outlet Number
c. Ticket Number
d. Dollar amount of each ticket
e. Delivery Date of each ticket

If the Parent and Outlet Numbers are not available from Big Chief, we will supply this information to them from our Customer Master file list. This information could then be incorporated into the Big Chief system for future ease in the processing of ticket data.

2. Big Chief will produce an extract program that will be run against their file (A/P Liability) to extract all ticket information presently on that file. The output file created by this program will be in a format acceptable to the N/A subsystem APNND, Cash Receipt Advice (See Record Layout). This data, in the form of a disk, will then be sent to us for balancing purposes and at the same time, Big Chief's check, accompanied by a detailed listing of the information on the disk (See Report Layout #1) will be sent to the National Accounts lock box.

The disk received by our Data Processing Department will be balanced according to our prescribed procedures. The final result of this balancing is that the dollar amount of the submitted check and the detail of the disk must 'zero balance' (00).

3. Upon completion, the balanced cash disk will be processed through the National Accounts System. This will produce a matchup by ticket number against the N/A Updated Statement History file and the production of National Syrup Account Billing Statements.

what we have found out about how the new system would work," without actually answering the question.

Had you been he and used the technique in Exhibit 4, here's what would have happened:

1. You would have drawn a box and said to yourself, "What *Subject* am I discussing?" (BC request for change)

2. What *Question* am I answering in the reader's mind about the Subject?" (Is it a good idea?)

3. What's the *Answer?* (Yes)

4. Now let me check that that is really the Question and really the Answer by thinking through the introduction. To do that I take the Subject and move up to the

Situation. The first sentence of the Situation must be a statement about the Subject. What is the first noncontroversial thing I can think of to say about the Subject—something I know the reader will not question, but will accept as fact? (They have requested a change in the procedure.)

When you go to write the introduction out, you will of course in this paragraph explain the nature of the change, but for the purposes of working out your thinking you need only get clear the essence of the point of the paragraph.

5. Now you imagine the reader says, "Yes, I know that, so what?" This should lead you directly to a statement of the *Complication.* (You asked me whether it makes sense.)

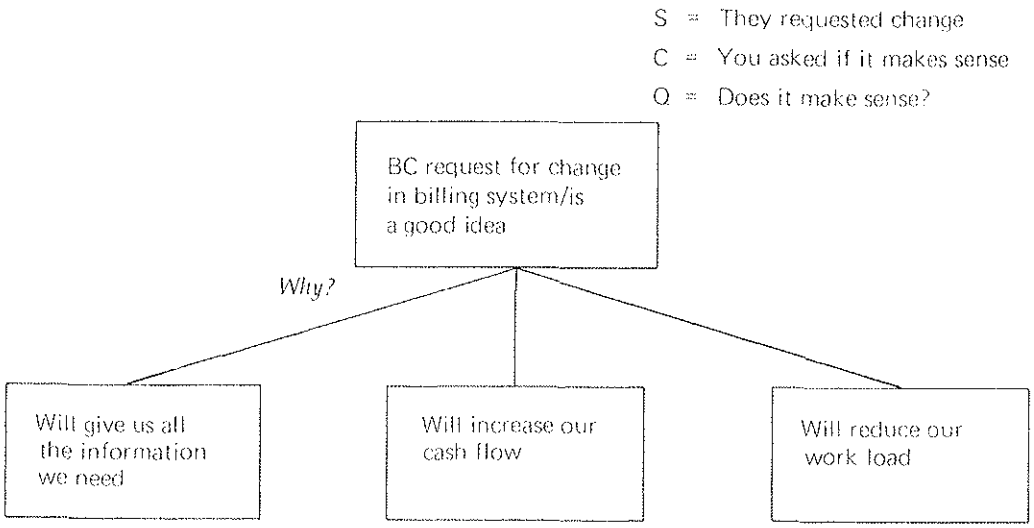
The Question, as you've stated it, should now be the obvious next thing that would pop into the reader's mind (Does it make sense?). Since that's roughly what you've stated as your Question, you can see that both it and the Answer match, so you have checked that the point you are making is valid for the reader.

6. Given the statement that the change does make sense, you can now move down to determine what *New Question* would be raised in the reader's mind by your stating it to him. (Why?)

7. The answer to any Why? question is always "Reasons," so you know that the points you need across the Key Line must all be reasons. What might your reasons be?

- ¶ It will give us the information we need.
- ¶ It will increase our cash flow.
- ¶ It will reduce our work load.

Exhibit 6 *The points do answer the question*



8. After determining that in fact these points are the right points and in logical order, the next step is to move down and spell out what you need to say to support each one. In the case of so short a document, however, you can probably proceed to write without further structuring. The supporting ideas are likely to be easily available in your mind and will come to you as you get to each section to write it.

As you can see, the technique forces a writer to draw from his mind only the information that will be relevant to his reader's question. But in doing so, it has helped push his thinking to deal fully with the question, rather than only partially as in the original example. And of course, if he follows the top-down order of presenting the ideas in writing, the entire message will be remarkably easy for the reader to absorb.

THE BOTTOM-UP APPROACH

There may be frequent occasions when you find that your thinking is not fully enough developed to work out the top part of the pyramid. Perhaps you can't decide precisely what your Subject is, or the Question isn't clear to you, or you can't sort out what the reader does and doesn't know for sure. In such cases, simply move down to the Key Line level.

If you can think of any Key Line points, fine; but often you won't be able to. Do not despair. You can work out the ideas from the bottom up by following a 3-step process.

1. List all the points you think you want to make.
2. Work out the relationships between them.
3. Draw conclusions.

Again, let me demonstrate how this technique would work by using a document that needs rewriting (Exhibit 7). This is a memorandum written by a young consultant to his engagement manager after 2 weeks of working on his first assignment. The client was a printing company in England.

I know nothing about the situation or the subject other than what is stated in the memorandum. We therefore have to treat the document as a closed universe, withholding judgment on whether what he says is true or right. We just want to make what it says clear.

Exhibit 7 *The reasoning rambles*

To: Date:

From: Subject: TTW

Following is a summary of the results of this last 2 weeks' work.

As we already knew composing costs are the most important part in all new settings ranging from 40 percent in Hardbacks to 50-55 percent in Paperbacks.

The most important elements in composing costs are:

Machine composition	30-50%
Reading	17-25%
First proof and revise	10-16%
Make up	10-20%
Imposition and plate laying	10-15%

A comparison with PAR standards shows that TTW has a relatively low productivity in composing. At the moment the composing estimators are working on some specific examples I have given to them.

Every job in composing goes through the same steps basically to ensure a high level of quality. This may explain partly why they are considered uncompetitive for composing simple jobs.

There is a good deal of interest in Aylesbury in finding out what are the facts behind their composing costs. I have spoken about it with Roy Walter, Brian Thompson and George Kennedy. Kennedy is willing to set up an experiment in order to find out: (1) if there are any steps in the composing process that can be eliminated, particularly for certain jobs, and (2) what are the causes behind the apparent low productivity – i.e., why do they rank below PAR.

Composing is at the present moment overloaded. Most of the jobs run behind schedule in the department. The present undercapacity is particularly acute in hand composition. TTW is paying lower wages than other printers in the area and it is becoming hard to get and retain compositors.

At the moment, they are faced with a new union demand. Also two compositors just left.

The department has less people than budgeted and their overtime hours exceed budget by more than 50 percent.

CONCLUSIONS

1. It seems feasible to reduce composing costs by:
   a. Simplifying the process for cheap jobs
   b. Increasing productivity by changing methods.

2. In order to carry out the first one it would be necessary to do some experiments on specific jobs, following them throughout the whole process, and controlling the marginal effect on quality of changes in the number and timing of checks, and the customer's reaction to them. The savings involved could be up to 10 percent of total composing costs.

The second way of reducing costs requires, I believe, detailed methods study. TTW ranks 20-50 percent below PAR in setting and hand composition and it seems it would be possible to do better than that.

3. A comparison between TTW and Baird, Purnell or Waterlow may throw some light on this. George Kennedy and Roy Walter seemed to be very interested in carrying out the comparison. I have told them it may not be very meaningful after all.

4. The attitudes with respect to composing costs in Aylesbury are mixed. Gerry Calvert feels that they are definitely high, George Kennedy claims that there is no hard evidence that they are and Roy Walter recognizes that for him they are a mystery. They all seem very willing to investigate them.

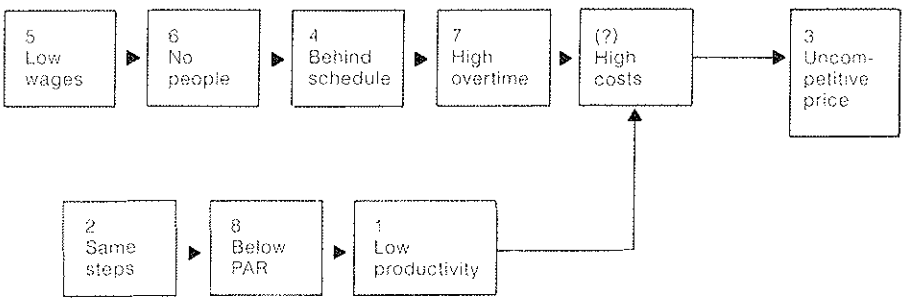
STEP 1: *List the points*

PROBLEMS	SOLUTIONS
1. Low productivity in composing	1. Simplify the process for cheap jobs
2. Same steps for each job	2. Increase productivity by changing methods
3. Uncompetitive prices for simple jobs	
4. Behind schedule	
5. Paying lower wages	
6. Shortage of people	
7. High overtime	
8. Below PAR in setting and hand composition	

Go first to the recommendations, since it is always easier to determine the validity of action ideas than of situation ideas (see Chapter 7, *Summarizing Grouped Ideas*). What is the relationship between simplifying the process and changing the methods? None; they both say the same thing, so there is nothing to be gained by analyzing these.

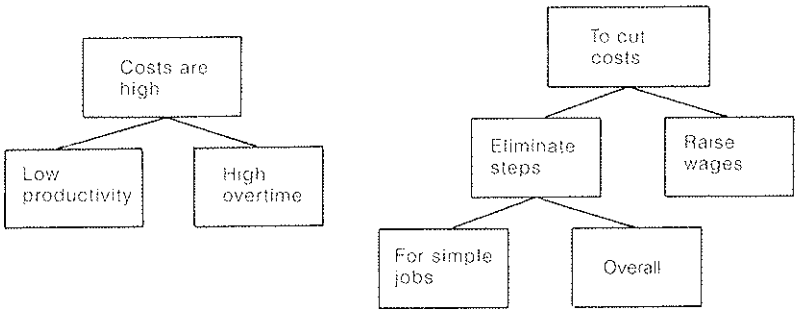
We move on to the problems, and in looking at them a moment, it becomes apparent that there are some cause-and-effect relationships implied here, which you want to lay out as visually as possible.

STEP 2: *Work out the relationships*



This analysis reveals two separate lines of reasoning, with the possibility that some points that should be made have been omitted. Now you're ready to draw some conclusions. Either he's saying that the costs are high because the productivity is low and the overtime is high, or he's saying that to cut the costs you have to simplify the methods and raise the wages.

STEP 3: *Draw conclusions*



To decide which, you want to think through the introduction. What does the original memo indicate the reader already knows? Apparently he knows that costs are important, that TTW is uncompetitive in its pricing of simple jobs, and probably that nobody at TTW knows whether the costs are too high or not. In that case, your thinking might go something like this:

1. *Subject* = composing room costs.
2. *Question* = are they too high?
3. *Answer* = yes.
4. *Situation* = composing room costs are the most important element in total cost.
5. *Complication* = don't know if they are too high a proportion, but uncompetitiveness indicates they might be.
   Question (2) = could they be cut?
   Answer (3) = yes.
6. *New Question* = how?
7. *Key Line* = eliminate unnecessary steps in the composing process and raise wages to competitive levels.

Exhibit 8 following shows these ideas in what might have been an acceptable version of this memorandum. You may not agree with the young consultant's reasoning, but at least it is presented so clearly that you the reader can determine whether you agree with it or find things to question about it.

I have reprinted the memorandum in full here because I want to demonstrate that the total introduction includes a statement of the Key Line points. With these included, the reader can get your entire thinking in the first 30 seconds or so of reading. And since the rest of the document exists only to explain or defend what you have already stated, he can be confident that no important points are going to jump up and surprise him later on. Consequently, he can scan if he has limited time available. Indeed, if your entire thinking is not clear to the reader in the first 30 seconds of reading, you should rewrite.

Exhibit 8 *The conclusions are clear*

To:

From: Subject: TTW

I have spent the past 2 weeks in Aylesbury looking at costs in the Composing Room. As we already knew, composing costs represent 40 percent of hardback costs, and 50-55 percent of paperbacks. TTW does not know whether these costs are too high, but the company is considered uncompetitive for simple jobs.

Our preliminary investigation indicates that composing costs could probably be cut considerably by:

- ¶ Eliminating unnecessary steps in the composing process
- ¶ Raising wages to competitive levels.

ELIMINATING STEPS

TTW ranks 20-50 percent below PAR standards in setting and hand composition. A look at composing methods shows that every job goes through basically the same steps to ensure high quality, whether it is a Bible or a thriller. This may explain partly why they are considered uncompetitive.

I have discussed these findings with Roy Walter, Brian Thompson, and George Kennedy. Kennedy is willing to set up an experiment to learn (1) whether any steps in the process can be eliminated, particularly for simple jobs, and (2) the causes of the low PAR standing.

Beginning next week we will follow a few simple jobs through the process, controlling the marginal effect on quality of changes in the number and timing of checks, and test the customer's reaction to them. The savings involved could be up to 10 percent of total composing costs. We will also carry out a detailed methods study to try to close the PAR gap.

RAISING WAGES

TTW pays lower wages than other printers in the area, and is finding it difficult to get and retain compositors. Two compositors just quit, leaving the department with fewer people than budgeted. As a result, most jobs are running behind schedule, and overtime hours exceed budget by more than 50 percent.

The company presently faces a new union demand, which may force them into higher wages. If so, they should be able to hire appropriate people and eliminate the overtime charges.

In addition, the headings serve to highlight the major points of the structure so that the reader can quickly find the detailed discussion of any point. This is particularly helpful if the document is a lengthy one. To this end, you want to take some care in the way you word the headings (see Chapter 10, *Reflecting the Pyramid on the Page*), making sure to state them so that they reflect ideas rather than categories. Never have a heading called "Findings," for example, or "Conclusions." Such headings have no scanning value.

Finally, a word about writing style. You will note that the original TTW memorandum and its rewritten version differ very little in the way in which the language is used or the sentences worded. The clarity of the second document comes from the pyramidal ordering of the ideas, rather than from any refinement of writing style.

CAVEATS FOR BEGINNERS

The existence of the pyramid rules enables you to start with an idea anywhere in the pyramid and discover all the others. Essentially, though, you will either be working from the top down or from the bottom up. I have tried to tell you exactly what to do in a general way, but the possibilities are endless, so that questions are inevitable. Following are the answers to some of the most commonly asked questions from beginning users of the pyramid.

1. *Always try top down first.* The minute you express an idea in writing, it tends to take on the most extraordinary beauty. It appears to have been chiseled in gold, making you reluctant to revise it if necessary. Consequently, try not to begin by just dictating the whole document "to get it all down," on the assumption that you can figure out the structure more easily afterwards. The chances are you'll love it once you see it typed, no matter how disjointed the thinking really is.

2. *Use the Situation as the starting point for thinking through the introduction.* Once you know what you want to say in the bulk of the introduction—Situation, Complication, Question, and Answer—you can place these elements in any order you like as you write, depending on the effect you want to create. The order you choose affects the tone of the document, and you will no doubt want to vary it for different kinds of documents. Nevertheless, begin your *thinking* with the Situation, since you're more likely to be able to identify the correct Complication and Question following that order.

3. *Don't omit to think through the introduction.* Very often you'll sit down to write and have the main point fully stated in your head, so that the Question that triggered it is obvious. The tendency then is to jump directly down to the Key Line and begin answering the New Question raised by the statement of the main point. Don't be tempted. In most cases, you will find that you end up structuring information that properly belongs in the Situation or Complication, and therefore forcing yourself into a complicated and unwieldy deductive argument. Sort out the introductory information first, leaving yourself free to concentrate solely on ideas at the lower levels.

4. *Always put historical chronology in the introduction.* You cannot tell the reader "what happened" in the body of the document, in an effort to let him know the facts. The body can contain only ideas (i.e., statements that raise a question in the reader's mind because they present him with new thinking) and ideas can relate to each other only logically. This means that you can talk about events only if you are

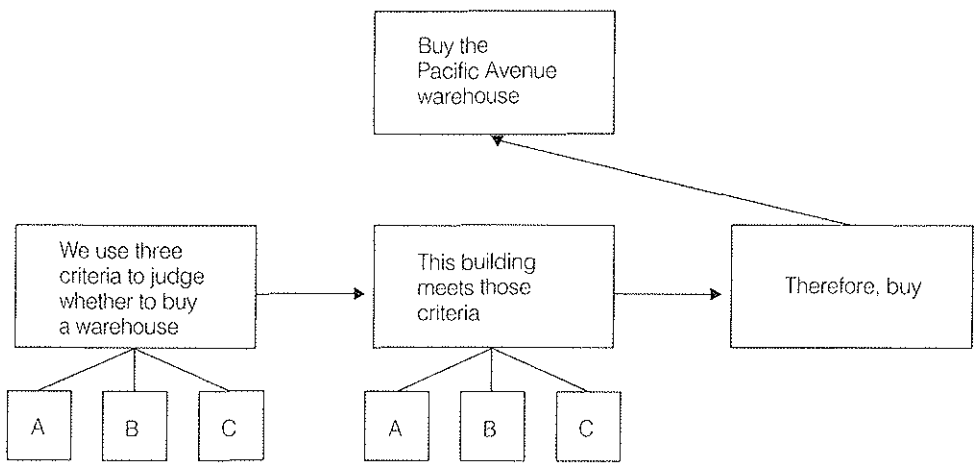
spelling out cause-and-effect relationships, since these had to be discovered through analysis. Simple historical occurrences do not exist as the result of logical thought, and therefore cannot be included as ideas.

5. Limit the introduction to what the reader will agree is true. The introduction is meant to tell the reader only what he already knows. Sometimes, of course, you won't know whether he actually knows something; at other times, you may be certain that indeed he does *not* know it. If the point being made can be easily checked by an objective observer and deemed to be a true statement, then your reader can be presumed to "know" it in the sense that he will not question its truth.

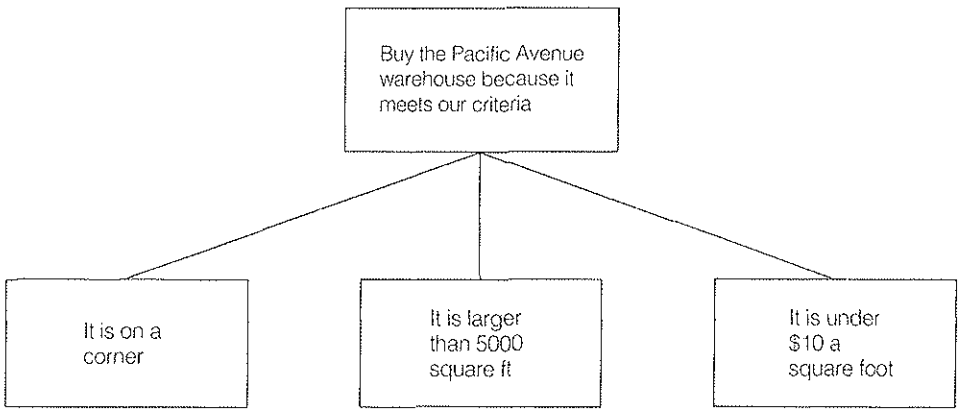
At the same time, be careful not to include in the introduction anything that the reader does *not* know. Including information that he does not know will cause you to distort his Question. And of course, conversely, do not include in the pyramid structure any information that the reader *does* know. Using information he does know to answer a lower level question implies that you have left important information out of the introduction, which if known would lead the reader to ask a different Question.

6. Given a choice, use induction rather than deduction to formulate the argument on the Key Line level. This point is discussed more fully in Chapter 5, *Deduction and Induction: The Difference.* You will find that inductive reasoning at the Key Line level is easier for a reader to absorb than deductive because it requires less effort to comprehend. The tendency is to want to present your thinking in the order in which you developed it, which is generally a deductive process. But that you developed your ideas in that order does not mean you need to present them that way. In most cases you can present deductively developed ideas in an inductive form.

Suppose you want to tell someone to buy a warehouse, and you support the recommendation with the following deductive argument.



Here the third point does not raise a question. And assuming your order of writing is to state first the top point and then the Key Line points, you do not need the third point to make the message clear. This is an overstructured argument, and signals that the inductive form would more efficiently communicate your message.



proof device of this sort is the lure of an unfinished story. For example, suppose I say to you:

"Two Irishmen met on a bridge at midnight in a strange city . . ."

I have your interest actively engaged for the moment, despite whatever else you may have been thinking about before you read the words. I have riveted your mind to a specific time and place, and I can effectively control where it goes by focusing it on what the two Irishmen said or did, releasing it only when I give the punch line.

That's what you want to do in an introduction. You want to build on the reader's interest in the subject by telling him a story about it. Every good story has a beginning, a middle, and an end. That is, it establishes a situation, introduces a complication, and offers a resolution. The resolution will always be your major point, since you always write either to resolve a problem or to answer a question already in the reader's mind.

But the story has also got to be a "good" story for the reader. If you have any children you know that the best stories in the whole world are the ones they already know. Consequently, if you want to tell the reader a really good story, you tell him one he already knows or could reasonably be expected to know if he's at all well informed.

Psychologically speaking, of course, this approach enables you to tell him things with which you know he will agree, prior to your telling him things with which he may disagree. Easy reading of agreeable points is apt to render him more receptive to your ideas than confused plodding through a morass of detail.

Where Do You Start the Situation?

You begin writing the Situation by making a statement about the subject with which you know the reader will agree, because you are telling him something that he knows to be, or will accept as, true. If you find you don't want to begin by making a statement about the subject, then either you have the wrong subject, or you're starting in the wrong place to discuss it.

When you can readily identify the reader by name, as in a letter or memorandum, determining where to start is usually fairly straightforward. You start at the point where you can make a self-sufficient and noncontroversial statement about the subject—self-sufficient in the sense that no previous statement is needed to make the precise meaning of this one clear, and noncontroversial in the sense that you can expect the reader automatically to understand it and agree to it.

If you are writing a report for wide circulation, however, or a magazine article or a book, the job is not so much to remind the reader of the question as to plant one. Here getting started is a bit more difficult. But you can assume that your readers are moderately well informed, and present an explanation of what is already generally accepted knowledge on the subject.

My rule of thumb is if the information is of the nature to have appeared in *Business Week* or *Fortune,* you can assume that it will be accepted as true by your readership. Once they see material arranged in a narrative form, and often in a way they had not thought about it before, they will be inspired to ask the question you wish to address.

The key characteristic of all opening Situation sentences is that they anchor you in a specific time and place, and thus establish the base for a story to come. Here are some typical opening sentences:

- ¶ Energoinvest is considering the possibility of exporting alumina from its Mostar plant to Ziar in Czechoslovakia. (Memorandum)
- ¶ Every major health service is beset by increasing pressure on already scarce resources—and the Irish Health Service is no exception. (Report)
- ¶ For the first 2.5 million years of the archeological record, the only artifacts left by man were strictly utilitarian: stone tools (Magazine article)
- ¶ Like other people, managers in today's business world are products of their own culture (Book)

The general response to such statements is for readers to nod their heads and say, "Yes, I'm sure that's true, but so what?" Or to put it more politely, "Why are you telling me this?" This response gives you the opening to insert the Complication.

What's a Complication?

The Complication of the introduction is not a complication in the "problem" sense of the word, although it may frequently be a problem. It is the Complication in the story you are telling, and thus creates the tension that triggers the Question.

Using the previously established truth about the subject as its starting point, the Complication goes on to tell what happened next in the story that inevitably leads to a Question. "What happened next" is usually a variation on one of the possibilities shown in Exhibit 10.

Exhibit 10 *Most documents answer one of four questions*

Situation (Established truth about the subject)	**Complication** (What happened next to trigger the question)	**Question**
Have a task to perform	Something stops us from performing that task	What should we do?
Have a problem	Know the solution	How do we implement the solution?
Have a problem	A solution has been suggested	Is it the right solution?
Took an action	Action didn't work	Why not?

Exhibit 11 shows an example of each type of structure, all drawn from Henry Strage's *Milestones in Management,* an anthology of literature that has helped to shape management thinking over the last 30 years.* As you read them, you might want to note the many variations there can be in style as one tries to bring to life the story reflected in the bare bones of the S-C-Q structure.

Exhibit 11 *Introductions reflect a story structure*

RISK ANALYSIS IN CAPITAL INVESTMENT

Of all the decisions that business executives must make, none is more challenging—and none has received more attention—than choosing among alternative capital investment opportunities. What makes this kind of decision so demanding, of course, is not the problem of projecting return on investment under any given set of assumptions. The difficulty is in the assumptions and in their impact.

Each assumption involves its own degree—often a high degree—of uncertainty; and, taken together, these combined uncertainties can multiply into a total uncertainty of critical proportions. This is where the element of risk enters, and it is in the evaluation of risk that the executive has been able to get little help from currently available tools and techniques.

There is a way to help the executive sharpen key capital investment decisions by providing him or her with a realistic measurement of the risks involved. Armed with this gauge, which evaluates the risk at each possible level of return, he or she is then in a position to measure more knowledgeably alternative courses of action against corporate objectives.

David B. Hertz, *Harvard Business Review*
January–February 1964 and September–October 1979

S = *Need to choose among alternative capital investment opportunities*
C = *Do not know how to evaluate risk of uncertainty*
Q = *Is there a realistic way to measure risks involved?*
A = *Yes*

ONE MORE TIME: HOW DO YOU MOTIVATE EMPLOYEES?

How many articles, books, speeches, and workshops have pleaded plaintively, "How do I get an employee to do what I want him to do?"

The psychology of motivation is tremendously complex, and what has been unraveled with any degree of assurance is small indeed. But the dismal ratio of knowledge to speculation has not dampened the enthusiasm for new forms of snake oil that are constantly coming on the market, many of them with academic testimonials.

Doubtless this article will have no depressing impact on the market for snake oil, but since the ideas expressed in it have been tested in many corporations and other organizations, it will help—I hope—to redress the imbalance in the aforementioned ratio.

Frederick Herzberg, *Harvard Business Review*
January–February 1968

S = *Want to get employees to take specific actions*
C = *Need to apply psychology of motivation*
Q = *How* do *we do that?*
A = *Apply the ideas in this article*

*Strage, Henry A., McKinsey & Company, *Milestones in Management, An Essential Reader.* (Blackwell Publishers: London) 1992

MARKETING MYOPIA

Every major industry was once a growth industry. But some that are now riding a wave of growth enthusiasm are very much in the shadow of decline. Others which are thought of as seasoned growth industries have actually stopped growing. In every case the reason growth is threatened, slowed, or stopped is not because the market is saturated. It is because there has been a failure of management.

Theodore Levitt, *Harvard Business Review*
July–August 1960 and September-October 1975

S = Many major industries have stopped growing or are threatened with decline

C = Assumption is that growth is threatened because the market is saturated

Q = Is that a correct assumption?

A = No, there has been a failure of management

MANAGING OUR WAY TO ECONOMIC DECLINE

During the past several years American business has experienced a marked deterioration of competitive vigor and a growing unease about its overall economic well-being. This decline in both health and confidence has been attributed by economists and business leaders to such factors as the rapacity of OPEC, deficiencies in government tax and monetary policies, and the proliferation of regulation. We find these explanations inadequate.

They do not explain, for example, why the rate of productivity growth in America has declined both absolutely and relative to that in Europe and Japan. Nor do they explain why in many high-technology as well as mature industries America has lost its leadership position. Although a host of readily named forces—government regulation, inflation, monetary policy, tax laws, labor costs and constraints, fear of a capital shortage, the price of imported oil—have taken their toll on American business, pressures of this sort affect the economic climate abroad just as they do here.

A German executive, for example, will not be convinced by these explanations. Germany imports 95% of its oil (we import 50%), its government's share of gross domestic product is about 37% (ours is about 30%), and workers must be consulted on most major decisions. Yet Germany's rate of productivity growth has actually increased since 1970 and recently rose to more than four times ours. In France the situation is similar, yet today that country's productivity growth in manufacturing (despite current crises in steel and textiles) more than triples ours. No modern industrial nation is immune to the problems and pressures besetting U.S. business. Why, then, do we find a disproportionate loss of competitive vigor by U.S. companies?

Robert H. Hayes and William J. Abernathy
Harvard Business Review, July–August 1980

S = American business has experienced marked deterioration

C = Problems faced are the same as France and Germany, but U.S. decline is worse

Q = Why?

A = Managers do not focus on long-term technological competitiveness

Why that order?

The situation-complication-solution form of the introduction is essential. However, the order of the parts can be varied to reflect the tone you want to establish in the document. Following is a basic structure rewritten in four different orders. Note how the tone changes slightly in each of these examples.

BASIC STRUCTURE

S = Diversification work has increased 40% in past 5 years
C = Cannot demonstrate significant benefit to the client from any of our work
Q = (How ensure that diversification studies do bring significant benefits to our clients?)
A = Set up a Firm Development Project to study the problem

STANDARD: situation–complication–solution

In recent years, the Firm has billed dozens of clients large amounts of money for diversification work. However, as yet no one in the London Office can claim the magnum of champagne available to the first consultant who can demonstrate an acquisition or merger by a client that would not have happened without our efforts. Since our diversification work has increased by 40 percent in the past 5 years, the time is ripe for a Firm Development Project to determine how we can ensure that diversification studies do bring significant benefits to the clients we serve.

This memorandum outlines the major issues and hypotheses that should be resolved and tested during the project.

DIRECT: solution–situation–complication

Our first priority for a Firm Development Project should be one directed toward improving our ability to help clients diversify. In the London Office alone, our work in helping clients find acquisition and merger candidates has increased by 40 percent over the past 5 years. Yet we cannot point to a single acquisition or merger that would not have happened without our efforts.

CONCERNED: complication–situation–solution

To my knowledge, no one in the London Office has yet conducted a single diversification study for a client that has yielded demonstrable results beyond what he could have done for himself. This situation is startling, since our practice in this area over the past 5 years has grown by 40 percent. We cannot in conscience go on charging clients for work that does not yield significant benefits and maintain our high reputation. I suggest, therefore, that we conduct a Firm Development Project to determine how we can make diversification studies an area of our practice that is proven to bring significant benefit to clients.

AGGRESSIVE: question–situation–complication

How can we make sure that diversification studies remain a significant area of our work? These studies now constitute 40 percent of our practice, but there are few situations in which we can point to having done more for the client than he could have done himself. We run the very real risk of losing momentum in this area unless we take steps to begin adding value.

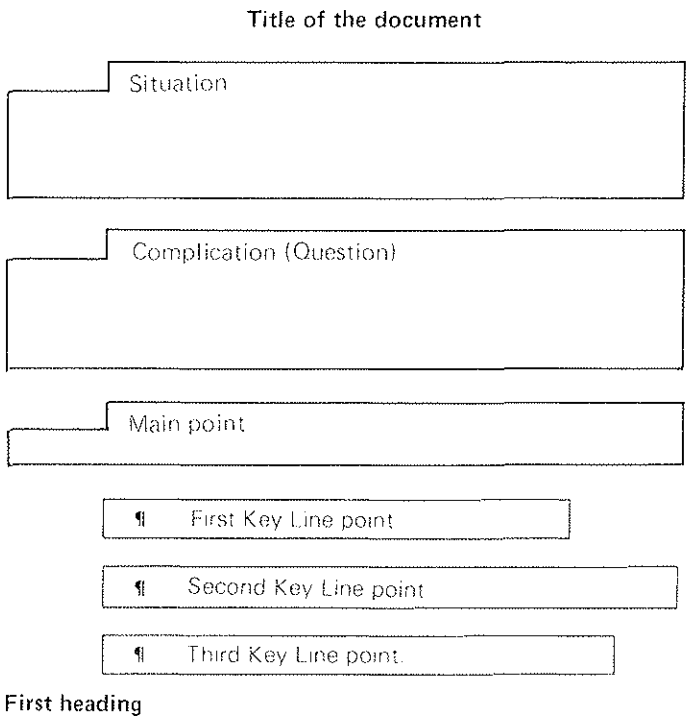
To this end, I suggest we immediately set up a Firm Development Project to determine how we can upgrade our skills in this area of our practice and make it one that consistently brings significant benefit to clients.

What About the Key Line?

The Key Line not only gives the answer to the new Question raised by the statement of your Main Point, it also indicates the plan of the document. If it is a lengthy document, therefore, you will want to set the points out in the middle of the page as shown in Exhibit 12. You can then put a heading to represent the first point, and start writing (see Chapter 10, *Reflecting the Pyramid on the Page*).

Exhibit 12

Set out the Key Line points at the beginning



Setting the points out enables the reader to get your entire thinking in the first 30 seconds or so of reading. Since anything that follows will serve only to explain or defend these points, you have courteously put the reader in the position of being able to determine whether he needs to go on or is ready to accept your conclusions as they stand. In any case, he now knows what to expect and can read with a greater sense of ease that there will be no unpleasant surprises.

If the document is a short one, with only a paragraph or two to support each section, you do not of course want to set out the points and then repeat them in headings. In such cases, use the points as topic sentences to your paragraphs and underline them so that they jump out at the reader.

Remember that the Key Line points should be expressed as *ideas.* It is not sufficient, for example, to write an introduction like the following:

> This memorandum describes the project team approach to identifying and achieving significant profit improvements. It is organized in six sections as follows:
>
> ¶ Background
> ¶ Principles of project team approach
> ¶ What project work is
> ¶ How the program is organized
> ¶ Unique benefits and specific results
> ¶ Prerequisites for success.

Here the setout of the points is useless in the sense of conveying the message of the document to the reader. It simply forces on the reader a string of words that he can't put into perspective. It is excess baggage that wastes his time and delays his understanding.

As a rule of thumb, you never want to have a section labeled "Background" or "Introduction" because the information it contains will not be on the same level of abstraction as the other points that follow. And in listing subjects rather than ideas, there is a danger that the ideas assumed to be behind the subjects will probably not form a clear argument, either inductive or deductive.

In the example above, one suspects that the ideas in the various sections are indeed badly jumbled as they stand. For example, the "Unique benefits and specific results" should probably be discussed under the "Principles of project team approach," and the "Prerequisites for success" probably belong under "How the program is organized." Never write about categories, only about ideas.

How Long a Story?

How long should an introduction be? How long should a man's legs be? (Long enough to reach the ground.) The introduction should be long enough to ensure that you and the reader are "standing in the same place" before you take him by the hand and lead him through your reasoning.

Generally, this means two or three paragraphs, arranged as previously shown in Exhibit 12. The Situation and the Complication can each be as long as three or four paragraphs, but never more than that. (How much more can it take to remind someone of what he already knows?) Indeed, if you find yourself littering the introduction with exhibits, you can be sure that you are overstating the obvious.

By contrast, the introduction can also be as short as a sentence: "In your letter of January 15 you asked me whether . . . " The closer you are in your everyday dealings to the person to whom you are writing, the shorter the introduction can get. But it must always say enough to remind the reader of his Question.

These examples demonstrate that the length of an introduction is not necessarily related to the length of the writing to follow. Rather, it is related to the needs of the reader. What does he have to be told not only to comprehend fully the significance of your main point, but also to want to read on to learn how you arrived at it?

If you are beginning to think that it might be difficult to write a good introduction, you're right. More botches are made of introductions than of any other part of a document. However, by reading enough examples you should get a sense of when an introduction sounds "right," and keep working at yours until they do.

LETTER

In his article "Japanese Businessmen: The Yen Is Mightier Than the Sword," James Sterba credits the Sony Corporation with leading the way in commercial exploitation of the transistor while the inventor, Bell Telephone Laboratories, "didn't know what to do with it except sell it to the Pentagon."

The statement is neither descriptive truth nor objective metaphor. Bell Laboratories knew what to do with the transistor before the device was invented.

NEWSPAPER EDITORIAL

The Nixon Administration has launched a phony attack on the television networks, and the networks have responded with a bogus defense. Uninstructed people, as a result, have the impression that freedom and liberty are under serious fire in this country.

In fact the issue is what kind of society we want to shape through television. It is a question of whether we want a self-indulgent society with anarchic tendencies, or a society of tighter common bonds including a touch of elitist culture.

*MAGAZINE ARTICLE**

Product managers have taken well-earned bows for the success of many outstanding companies. They have received—and they deserve—the credit for steering many well-known products to market-share leadership and high profitability in the face of today's intense, competitive scramble. In many large, complex multiproduct corporations, the product manager has provided the vigorous product-by-product leadership that the top executives of a smaller, more tightly knit company give to its one basic product line.

It comes as no surprise, then, to find a recent survey disclosing that three out of four companies in its sample are using this organizational concept. What is surprising, however, is the current surge of dissatisfaction with the way product managers and the product manager concept are working out.

Do these complaints—and their number is increasing—lead to the conclusion that the product manager concept itself is not practical? Certainly not, for the many instances where it is still working well demonstrate that it is not only a sound concept, but in many ways an indispensable one. It is because of the soundness of the concept that it works in so many cases. Where it fails, the fault, almost invariably, lies in how management has gone about applying—or misapplying—a basically sound management tool.

INTERNAL MEMORANDUM

As you know, the Procedures Department maintains a Procedures Manual covering those activities where nonconformity of action would be detrimental to the company. From time to time these procedures need to be updated, either because new procedures have been developed or because old

*B. Charles Ames, *Harvard Business Review*, November–December 1963

ones have been revised. To ensure compatibility, we should each follow the approach outlined below in entering a procedure into the Manual.

REPORT

Continental Life has long been a recognized leader in the life insurance industry. The fifth largest stock company in terms of assets, it has been able to maintain a pattern of continued growth in premium income over the past decade in the face of increasing competitive pressures. However, the company's historic marketing environment is undergoing significant change that is having a major impact on its position: buyer interest is shifting from industrial to ordinary insurance, methods of payment are changing from debit collection to premium notice, and competition is becoming much stronger and more broadly based.

Management clearly recognizes that its Field organization suffers from chronic operating problems that stand in the way of improving performance. It also recognizes that organization and management problems in the Home Office keep it from supplying the leadership and guidance to the Field necessary to deal with these problems. Thus, it has appropriately recognized that it would be short-sighted to attempt to correct the problems in the field without having first strengthened the Home Office organization structure and management process. This report spells out how to achieve that objective.

*ESSAY**

The world has been slow to realize that we are living this year (1930) in the shadow of one of the greatest economic catastrophes of modern history. But now that the man in the street has become aware of what is happening, he, not knowing the why and the wherefore, is as full today of what may prove excessive fears as, previously, when the trouble was first coming on, he was lacking in what would have been a reasonable anxiety.

He begins to doubt the future. Is he now awakening from a pleasant dream to face the darkness of facts? Or dropping off into a nightmare which will pass away? He need not be doubtful. The other was *not* a dream: this *is* a nightmare, which will pass away with the morning.

For the resources of nature and men's devices are just as fertile and productive as they were. The rate of our progress toward solving the material problems of life is not less rapid. We are as capable as before of affording for everyone a high standard of life—high, I mean, compared with, say, 20 years ago—and will soon learn to afford a standard higher still.

We were not previously deceived. But today we have involved ourselves in a colossal muddle, having blundered in the control of a delicate machine, the working of which we do not understand. The result is that our possibilities of wealth may run to waste for a time—perhaps for a long time.

*J.M. Keynes, *Essays in Persuasion* (The Royal Economic Society, 1972).

*BOOK**

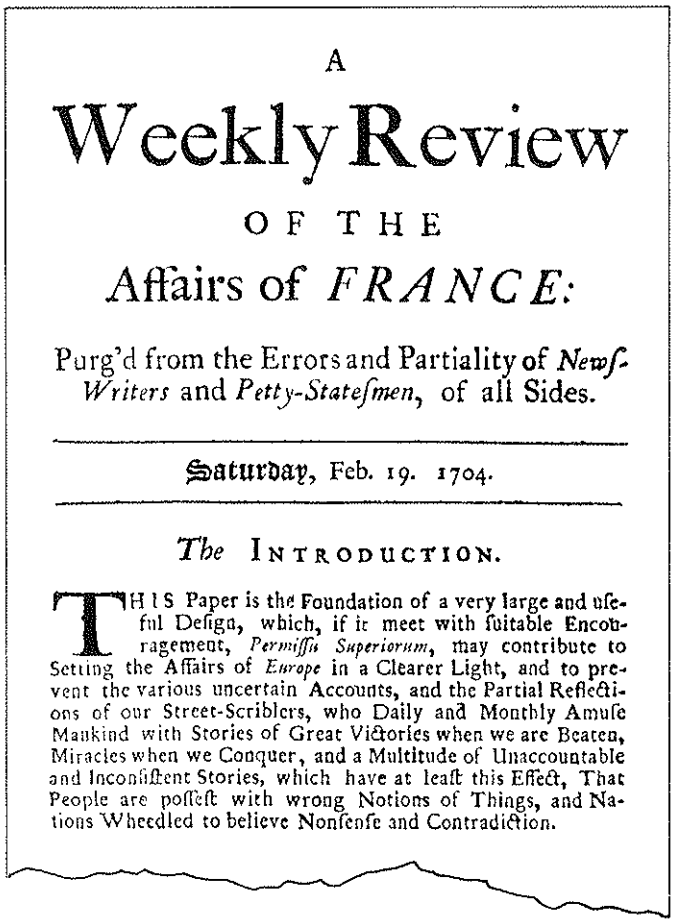
In the second century of the Christian Era, the empire of Rome comprehended the fairest part of earth, and the most civilized portion of mankind. The frontiers of that extensive monarchy were guarded by ancient renown and disciplined valour.

The gentle, but powerful, influence of laws and manners had gradually cemented the union of the provinces. Their peaceful inhabitants enjoyed and abused the advantage of wealth and luxury. The image of free constitution was preserved with decent reverence. The Roman Senate appeared to possess the sovereign authority, and devolved on the emperors all the executive powers of government.

*Edward Gibbon, *Decline and Fall of the Roman Empire.*

During a happy period of more than fourscore years, the public administration was conducted by the virtue and abilities of Nerva, Trajan, Hadrian, and the two Antonines. It is the design of this and of the two succeeding chapters to describe the prosperous condition of their empire; and afterwards, from the death of Marcus Antoninus, to deduce the most important circumstances of its decline and fall: a revolution which will ever be remembered, and is still felt by the nations of the earth.

*LONG-TERM PUBLISHING PROJECT**



A

Weekly Review

OF THE

Affairs of *FRANCE:*

Purg'd from the Errors and Partiality of *Newſ-Writers* and *Petty-Stateſmen*, of all Sides.

Saturday, Feb. 19. 1704.

The INTRODUCTION.

THIS Paper is the Foundation of a very large and uſeful Deſign, which, if it meet with ſuitable Encouragement, *Permiſſu Superiorum*, may contribute to Setting the Affairs of *Europe* in a Clearer Light, and to prevent the various uncertain Accounts, and the Partial Reflections of our Street-Scriblers, who Daily and Monthly Amuſe Mankind with Stories of Great Victories when we are Beaten, Miracles when we Conquer, and a Multitude of Unaccountable and Inconſiſtent Stories, which have at leaſt this Effect, That People are poſſeſt with wrong Notions of Things, and Nations Wheedled to believe Nonſenſe and Contradiction.

*G.M. Trevelyan, *Illustrated English Social History: Volume Three: The Eighteenth Century*, Pelican Books, London, 1964.

Do I Need to Introduce the Key Line Points?

Each of the Key Line points should also be introduced, following roughly the same S-C-Q process that you used to write the initial introduction, although much more briefly. That is, you again want to tell your reader a brief story that will ensure he is standing in the same place you are as he asks the question raised by stating each Key Line point.

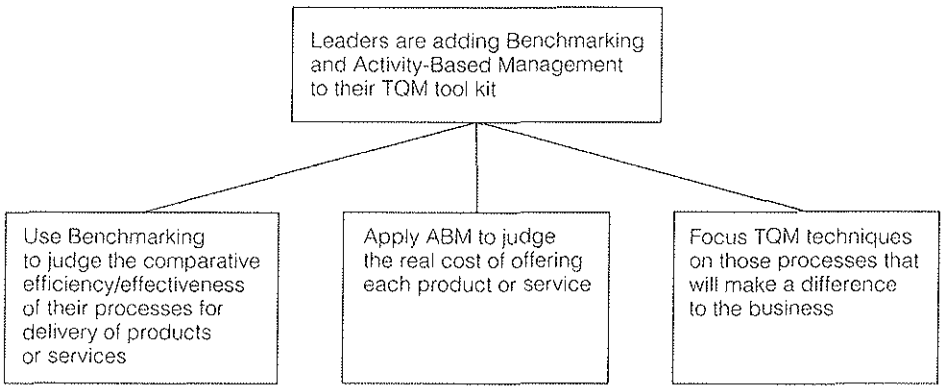
To illustrate, look at Exhibit 13, which shows the structure of a paper on "Management Tools for the Nineties".

Exhibit 13 *Key Line points also need introductions*

S = Total Quality Management was the hot management tool of the 80s. Used to cut cost/improve quality of products/services, thereby achieve competitive advantage, higher profits.

C = Most major companies have now adopted some form of TQM, but have not always seen expected benefits follow. Leaders somehow still holding/gaining market share, being highly profitable.

Q = Why? What are the leaders doing better?



The initial introduction has the form:

S = The belief is that using X tool will give you Y

C = Are using X, but others getting Y

Q = Why are others getting Y?

A = Using A + B + X

The answer leads directly to the new question, "How does using those things get to Y (competitive advantage, higher profits)?" and to Key Line points that say that leading companies:

- ¶ Use Benchmarking to judge the comparative efficiency/effectiveness of their products or services
- ¶ Apply Activity-Based Management to judge the real cost of offering each product or service
- ¶ Focus TQM techniques on those processes that will make a difference to the business.

The question under each point is "How does that work?", and the plural noun is "steps". However, you cannot simply begin writing by stating each point and then supporting it. You need to mark its place on the page with a heading that reflects the essence of the point to follow, and then introduce the point. Thus you would not say:

BENCHMARKING

Leaders use benchmarking to judge the comparative efficiency and effectiveness of their processes for delivering products or services. To do so, they:

- ¶ Measure efficiency of key processes
- ¶ Compare performance against competitors
- ¶ Identify underlying reasons for differences.

Rather, you want to use a heading that reflects more clearly the essence of the point. And you want to lead up to the point by reviewing for the reader what he already knows about the subject (benchmarking), and how a question would have arisen to which this point is the answer. For example:

BENCHMARKING PROCESS EFFICIENCY

S = Suppose you have put in TQM and cut loan application processing time from 2 days to 2 hours.

C = Are likely to assume such a big reduction is enough for competitive advantage

Q = Is it enough?

A = You can't tell until you compare yourself with the competition.

Introductions for the other Key Line points follow the same pattern.

DETERMINING REAL COSTS

S = Let's say you have now fully benchmarked yourself and become the best, so that everybody measures himself against you

C = Have every right to be proud, provided the actual return from offering the product/service is worth the real cost to produce/supply it

Q = How do you determine that what you are the best at is worth doing?

A = Analyze costs by activity rather than by function (Activity-Based Management)

ADJUSTING TQM TECHNIQUES

S = Have now gone out and benchmarked, applied ABM. Know where your processes are weak compared to competition, which products/services are really costly or wonderfully profitable

C = Time now to start tightening up those processes

Q = Is this where we use TQM?

A = Yes, but now will be using TQM activities primarily on those processes that will make a significant difference to the business

The difference between the initial and subsequent introductions lies in where the reader happens to be standing as he reads each. At the time of the initial introduction, you write to remind him what he knows about the subject of the paper (current management techniques). At the first Key Line point you write to remind him why *this* subject is relevant to the overall point. At the other Key Line points, you write to show him how the about-to-be-discussed subject is relevant to the one previously discussed.

In other words, you make yourself aware of what has immediately been put into the reader's head, and thus (given his vantage point) what else he needs to be told to elicit the question to which your next point is the answer.

To emphasize the theory behind writing good introductions:

1. *Introductions are meant to remind rather than to inform.* This means that nothing should be included that would have to be proved to the reader for him to accept the statement of your points—i.e., no exhibits.

2. *The introduction should always contain the three elements of a story.* These are the Situation, the Complication, and the Solution. And in longer documents you will want to add an explanation of what is to come. The first three elements need not always be placed in classic narrative order, but they do always need to be included, and they should be woven into story form.

3. *The length of the introduction depends on the needs of the reader and the demands of the subject.* Thus, there is scope to include whatever is necessary for full understanding: history or background of the problem, outline of your involvement in it, any earlier investigations you or others have made and their conclusions, definitions of terms, and statements of admission. All these items can and should be woven into the story, however.

What must be apparent by now from these examples is that the pivot on which your entire document depends is the beginning Question, of which there is always only one to a document. If you have two questions, they must be related: "Should we enter the market, and if so, how?" is really "How should we enter the market?" since if the answer to the first part is no, the second part does not arise. And if the answer to the

first part is yes, that becomes the point at the top of the pyramid, raising the question "How?" which gets answered on the Key Line.

On occasion you will not be able to determine the question easily just by thinking through the introduction. In that case, look at the material you intend to include in the body. Whenever you have a set of points you want to make, you want to make them because you think the reader should know them. Why should he know them? Only because they answer a question. Why would that question have arisen? Because of his situation. So that by working backward you can invent a plausible introduction to give your question a logical provenance.

SOME COMMON PATTERNS

As time goes on and you find yourself thinking through the introductions to a variety of documents, you will notice some common patterns begin to emerge, and note that you generally tend to write to answer only one of four questions.

1. What should we do?
2. How should we/will we/did we do it?
3. Should we do it?
4. Why did it happen?

The overwhelming number of documents are written to tell people what action to take in various situations. Indeed, it is rare that people want to know why something happened without at the same time knowing what action to take about it, except perhaps when reporting findings in the early stages of an analysis.

Which patterns become common for you will, of course, depend on the business you are in. But let me explain the four patterns I have seen repeated most often in business:

1. Giving direction (What should we do? or How should we do it?)
2. Seeking approval to spend money (Should we do it?)
3. Explaining "How to" (How should we do it?)
4. Choosing among alternatives (What should we do?)

Giving Direction

A directive must be the most common kind of business memorandum written anywhere in the world—reflecting a situation in which you write to ask or tell someone else to do something. In this case, you will be planting the question in the reader's mind rather than reminding him of it.

To illustrate, suppose you are holding a meeting for your field salesmen, at which you are planning to teach them how to present a new technique for organizing shelf space in chain grocery stores. However, in order to do so effectively you need some information from each on a particular problem chain in his local area. How would you structure the introduction? Very much in this manner:

S = At the field sales meeting we want to teach you how to present the new Space Management Program

C = To do so, we need information on a problem chain in your area

Q = (How do I give you the information?)

Or, to put it as starkly as possible:

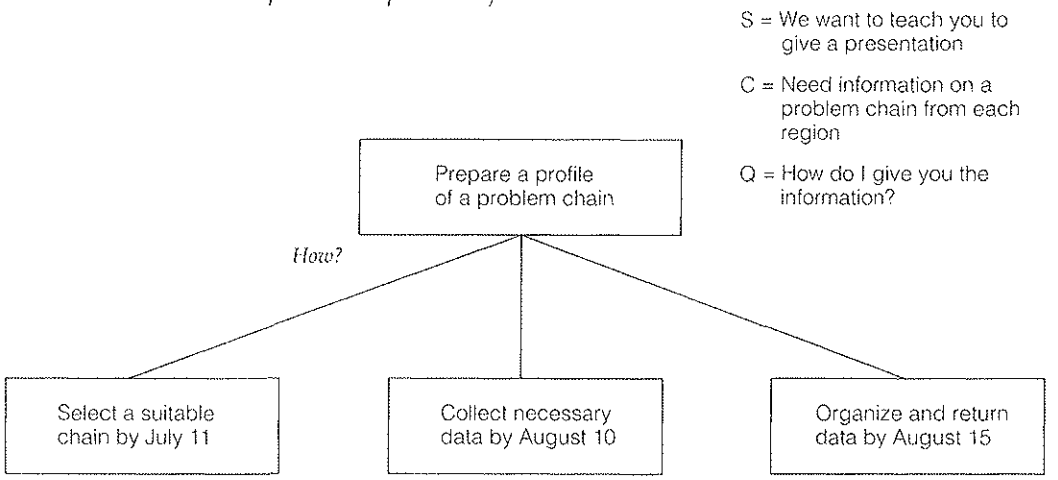
S = We want to do X

C = Need you to do Y

Q = How do we do Y?

In this case the question would be implied rather than stated, since the flow of the writing would not require it to be spelled out. Nevertheless, you should absolutely spell it out *for yourself* before you begin to write. Otherwise, you run the danger of not being sure of your question.

Exhibit 14 *Directives plant the question for the reader*



In this example, the question is "How?" Whenever the question is "How?" the answer is invariably "steps," so that you would end up with a structure something like that shown in Exhibit 14. Note also that the Complication and the Answer are roughly reversals of each other, since the Answer is the effect of carrying out the actions, which of course would solve the problem.

To try another example, suppose you have a procedures manual that various people in the company update or add to, and you want to make sure they all do it in the same way:

S = We have a manual covering activities where nonconformity of action would be detrimental. From time to time it needs updating.

C = To ensure compatibility, it is important to follow the same procedure.

Q = (What is the procedure?)

And again you have another question that would be implied rather than stated in writing. To show the pattern starkly:

S = You do X

C = Must do in Y way

Q = What is Y way?

Seeking Approval to Spend Money

Another very common memorandum type is one requesting approval to spend money. For those the reader's Question is always "Should I approve the request?", and here again the Question would be implied rather than stated

Requests for funds tend to be structured roughly as follows:

S = We have a problem

C = We have a solution that will cost $ _____

Q = (Should I approve?)

Or, to put meat on it:

S = As you know, work in our department has increased by 20% a year for each of the last 4 years. Nevertheless, in line with headquarters policy, we have kept the head count to just 14 people. The result has been overtime and week end work, plus a growing backlog.

C = The backlog has now reached 22 weeks, which the field is finding unacceptable, and we have no further scope for adding hours. Research has indicated that we can both cut the backlog

and reduce the need for overtime working by installing an IBM _____ at a cost of $ _____.

Q = (Should I approve?)

A = We urge your approval of this request.

In supporting a request for approval, there tend to be three, sometimes four, standard reasons used to defend the expenditure:

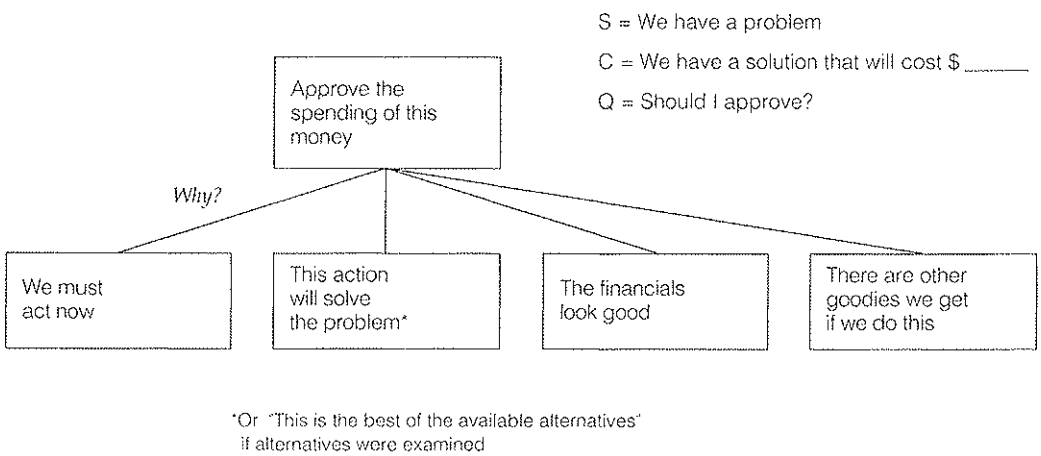
You should approve this request because:

- Resolution of the problem cannot wait
- This action will solve the problem (or this is the best way to solve the problem, if there are alternatives available)
- The cost will be more than offset by the projected savings (or some other form of financial justification)
- There are other goodies we can get.

The first point allows you to describe the problem in full detail, while the second point allows you to do the same for the solution. The third point covers normal financial analysis.

As for the fourth point, the facts do not always support this final statement, which might say something like, "It will create new opportunities for service". But if they do, you want to include them. In other words, you would not take the action for this reason, but as long as you are planning the action, you might as well point out this additional advantage.

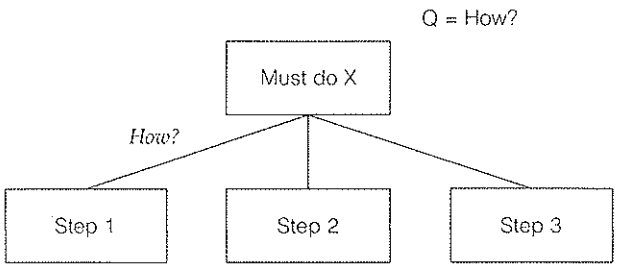
Here, in rough concept, is how the pyramid would look.



*Or "This is the best of the available alternatives" if alternatives were examined

Explaining "How to"

Frequently, particularly in consulting, you write because someone has a problem and you are telling him how to solve it. The Key Line structure of any "how to" document is "steps," as shown below:



However, the introductory structure varies slightly depending on whether you are telling the reader how to do something he has not done before or whether you are telling him how to do properly what he is already doing. The memorandum on The Role of the Board shown on page 19 in Chapter 2 is an example of the first type:

S = Must do X activity
C = Not set up to do so
Q = How do we get set up?

By contrast, suppose you have a company whose market forecasting system gives inaccurate forecasts, and they want you to tell them how to make it give accurate ones. The structure is always:

S = Your present system is X
C = It doesn't work properly
Q = How change to make it work properly?

The trick here is to begin your thinking by literally laying out the present process as they do it now. (See Exhibit 15 on the next page.) Then lay out the process as you think it should be done. The differences between the first structure and the second tell you what the steps on your Key Line must be.

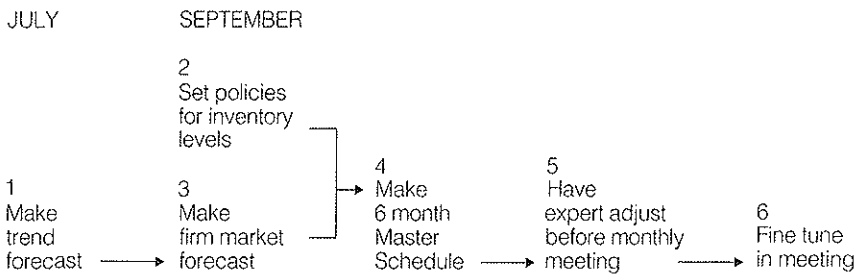
Let me emphasize the importance of making the two processes visible to yourself before you begin to write. You may assume that you know precisely what they are, having been working on them for so long. But unless you lay them out and compare them, the chances of leaving something important out are very great.

I have seen so many examples of incomplete thinking in this area that I make a special point of mentioning it here, and explaining it in more detail in Appendix B, *Examples of Introductory Structures.* Indeed, we had an example in the Big Chief memo in Chapter 3, page 23.

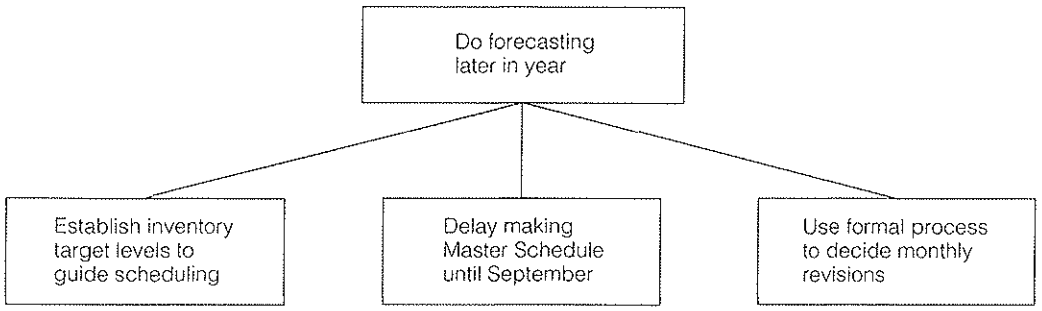
Exhibit 15 *Differences in the processes dictate Key Line points*

Present Process

Recommended Process



Recommended Structure



Choosing Among Alternatives

Frequently managers ask their subordinates to analyze a problem and come up with a solution, adding "And let me see your alternatives." Strictly speaking, as you will see in Chapter 8 when we discuss problem definition, there is no such thing as an alternative solution to a problem, provided the problem has been properly defined. Either what you recommend will solve the problem or it will not, and in that sense there are no alternatives.

What the manager actually means is "Give me an idea of the different things we could try if you cannot devise a solution that totally solves the problem as we have

defined it." Thus the only time you should have to write a memo that deals with genuine alternatives is when they are known by the reader in advance, probably because they have been under discussion in the company. In that case the introduction is very easy to structure:

S = We want to do X

C = We have alternative ways of doing it

Q = Which one makes the most sense?

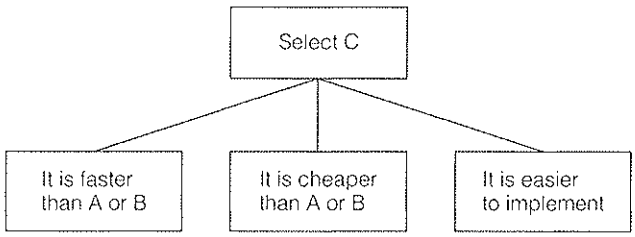
Or to put meat on it:

S = As you know, the recent ruling that a 5-105 HP motor is the most efficient for drilling oil in cold temperatures has led our largest customer to announce that he will switch from using our 10 HP motor to our competitor's 7¾ HP model.

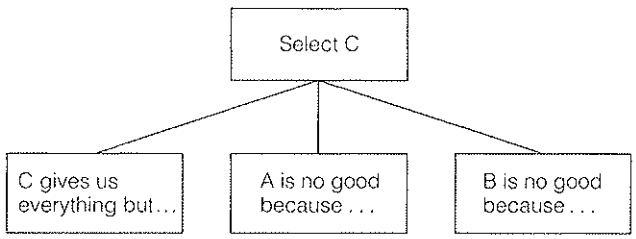
C = We have three possible responses:
- Cut the price of our 10 HP motor to that of our 7½ HP
- Reengineer the 7½ HP to make it match the 7¾ HP
- Purpose-design a 5-105 HP

Q = Which one makes the most sense?

Once you select an alternative, you generally have two ways in which you can structure the Key Line to answer why that alternative is better than the others, depending on what your analysis tells you. The best and easiest way to do it, if you can, is to structure it around the criteria you used to make the judgment:

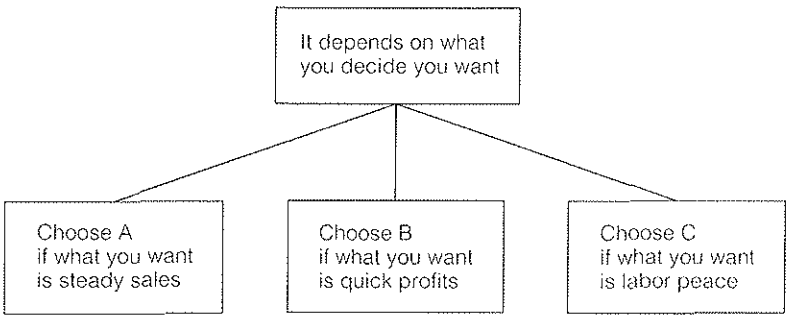


The trouble, of course, is that C is not always better than A or B on all three criteria. In that case, you can only present your argument by making a statement about each alternative:



In other words, you state the major reason you selected C, and the major reason you dropped both A and B.

By contrast, you can run into a situation where none of the alternatives will give you what you want; or, if there were no alternatives known in advance, no action you can recommend will give you everything you want to achieve with your solution. In those cases the Question is either still "Which?" or "What should we do?" and the answer would be:



Note that even here you are not structuring around "alternative ways to solve the problem," but rather around "alternative objectives," which is quite a different thing.

SOME COMMON PATTERNS—CONSULTING

Consulting documents differ from normal business documents in that they are longer and they are written mainly to inspire action. Thus, whether the document is a memorandum, report, presentation, or proposal, a consultant is usually answering only the first three of the four questions cited in Exhibit 10. I explain how to think about consulting documents in great detail in Chapters 8 and 9, *Defining the Problem* and *Structuring the Analysis of the Problem.* Here I want to touch briefly on the most common:

- ¶ Letters of Proposal
- ¶ Progress Reviews

Letters of Proposal

These documents are the lifeblood of consulting, and have thus had a good deal of thought lavished on them over the years by consulting firms. Most firms follow this approach:

S = You have a problem (1 or 2 sentence description of the problem)

C = You have decided to bring in an outsider to solve it

Q = (Are you the outsider we should hire to solve it?)

The Answer to the implied Question is always "yes," of course, generally followed by a 4-part structure:

1. We understand the problem
2. We have a sound approach for solving it
3. We have enormous experience in applying that approach
4. Our business arrangements make sense

In putting words on the introductory structure, you tend to imply the Complication and the Question, so that it might read something like this:

> We were delighted to meet with you to discuss the problem you are having in determining the best way to tackle the automotive aftermarket, in the face of conflicting points of view within the company. This document outlines our proposal for helping you sort through these alternatives and develop a strategy that will permit you to gain a sizable share in a short time.

This way of structuring a proposal is generally used for new clients, where the consultant wants to devote considerable attention to explaining the problem in such a way that his obvious expertise in the area becomes apparent to the reader.

In situations where the client is well known or the proposal is merely a formality, you will probably find it cleaner to put the description of the problem in the introduction, as I explain more fully in Chapter 8, *Defining the Problem.*

S = You have a problem (3–4 paragraph explanation)

C = You want consulting help to solve it

Q = How will you go about helping us solve our problem?

In this case the rest of the document is structured around the approach the consultant will take to solving the problem, on the theory that it is on the basis of the approach that the client will make his decision to hire. (Although alas that is not always the case.) This structure encourages the writer to weave the examples of his experience in with the explanation of how and why he plans to take the particular approach he is describing. The business arrangements are generally placed in a covering letter.

Progress Reviews

Progress Reviews are usually the formal communications one schedules with a client or a superior at the end of each phase of a project, often leading up to a final report. After the first one, the structure is always the same.

The first one will say something like this:

S = We have been working on X problem

C = We told you that step one in the analysis would be to determine whether Y is the case. We have now done that.

Q = What did you find?

Once this presentation has been made, the recipient will have a particular reaction. Perhaps he will ask you to investigate an anomaly you have uncovered in your work, or he may approve what you've done and tell you to move on to phase two. At the time of your next progress review, then, you might say something like this:

S = In our last progress review we told you that you had a capacity problem

C = You said you thought this would not be a problem long because you believed your competition was shortly going out of business. You asked us to investigate whether that were indeed the case. We have now completed our investigation.

Q = (What did you find?)

A = We found that you will still have a capacity problem, only worse.

Or to put it in skeletal form:

S = We told you X

C = You asked us to investigate Y, which we have done

Q = What did you find?

(You will find real life examples of introductions to consulting documents in Appendix B, *Examples of Introductory Structures.*)

I hope this discussion of opening introductions has made you think that it is important to devote sufficient thought to ensuring that you write a good introduction. For as you can gather from the examples, a good introduction does more than simply gain and hold the reader's interest. It influences his perceptions.

The narrative flow lends a feeling of plausibility to the writer's particular interpretation of the situation, which by its nature must be a biased selection of the relevant facts. This feeling of plausibility constricts the reader's ability to interpret the situation differently, in much the same way that a trial lawyer's opening statement seeks to give the jury a framework in which to receive the evidence to come.

The story flow also gives a sense of inevitable rightness to the logic of the writer's conclusion, making the reader less inclined to argue with the thinking that follows. And throughout, it establishes the writer's attitude to the reader as a considerate one of wanting him clearly to understand the situation—to see behind the story to the reality it represents.

5 DE-DUCTION AND INDUCTION: THE DIFFERENCE

As we have demonstrated, clear writing results from a clear exposition of the exact relationships between a group of ideas on the same subject. Properly organized, these ideas will always form a pyramid, with the various levels of abstraction established and related under a single thought.

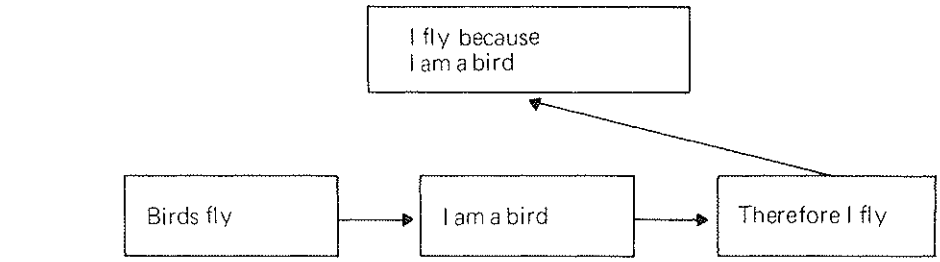
Ideas in the pyramid relate in three ways—up, down, and sideways. An idea above a grouping summarizes the ideas below, while these ideas in turn explain or defend the point above. At the same time, the ideas in the grouping march sideways in logical order. What constitutes logical order differs depending on whether the pyramided group was formed deductively or inductively.

These two forms of reasoning are the only patterns available for establishing logical relationships between ideas. Consequently, an understanding of how they differ and what their rules are is essential to being able to sort out your thinking and express it clearly in writing.

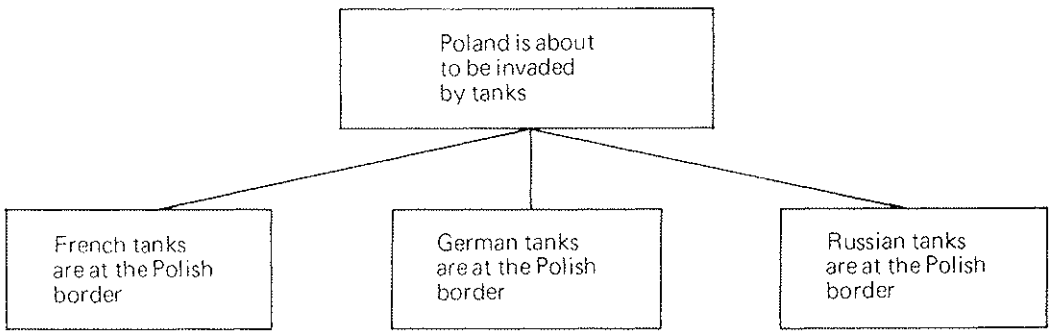
Briefly, the difference is as shown in Exhibit 16. Deduction presents a line of reasoning that leads to a "therefore" conclusion, and the point above is a summary of that line of reasoning, resting heavily on the final point. Induction defines a group of facts or ideas to be the same kind of thing, and then makes a statement (or inference) about that sameness. The deductive points derive from each other; the inductive points do not.

These differences are really quite enormous, as the next two sections will demonstrate. But once you have digested them, you should have little difficulty in recognizing or sorting out either form of reasoning, or in choosing the one that appropriately permits you to say clearly what you mean.

Exhibit 16 *Deduction differs from induction*



Inductive reasoning



DEDUCTIVE REASONING

Deductive reasoning appears to be the pattern the mind generally prefers to use in most of its thinking, possibly because it is easier to construct than inductive reasoning. In any case, it is usually the pattern one follows in problem solving, and therefore the one people attempt to follow in communicating their thinking. But while it is a useful way to think, it is a ponderous way to write, as I shall hope to show.

How It Works

First, let's understand what deductive reasoning is. It is usually described as taking the form of a syllogism—an argument in which a conclusion is inferred from two premises, one major and one minor. I find these terms confusing in explaining how deductive reasoning works in writing, and so I will not use them again.

Instead, think of a deductive argument as needing to do three things:

- ¶ Make a statement about a situation that exists in the world.
- ¶ Make another statement about a related situation that exists in the world at the same time. The second statement relates to the first if it comments on either its subject or its predicate.
- ¶ State the implication of these two situations existing in the world at the same time.

Exhibit 17 *Deductive points derive from each other*

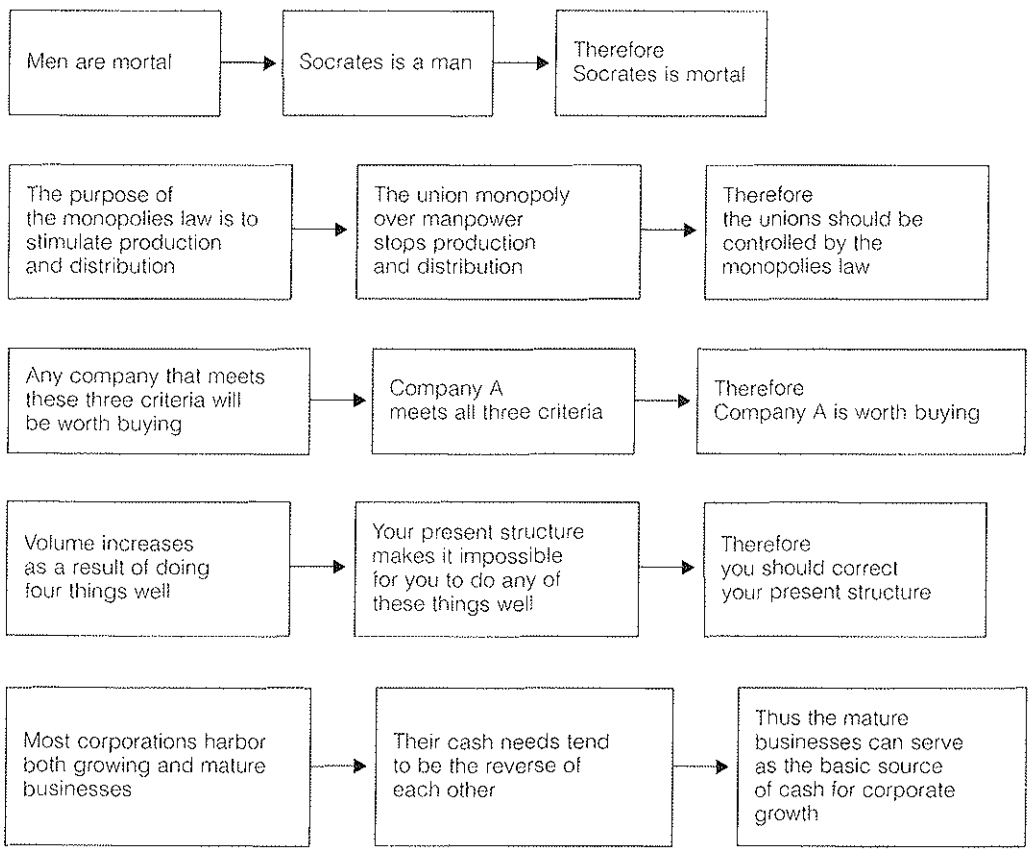


Exhibit 17 shows several deductive arguments, each of which can be seen to do precisely these three things. And in each case the point at the top should roughly summarize the ideas grouped below, resting heavily on the final point. Thus, "Because Socrates is a man he is mortal," or "Since the unions behave as a monopoly, they should be controlled by the monopolies law," or "If you want to increase your volume, you must change your present structure," and so forth.

These are examples of deductive arguments in which each step of the reasoning has been included. But sometimes you will find yourself wanting to skip a step and chain two or more deductive arguments together, since to put in every step would take too long and sound pedantic. This chaining of arguments is perfectly permissible, provided that your reader is likely to grasp and agree with the missing steps.

Exhibit 18 *Deductive arguments can be chained*

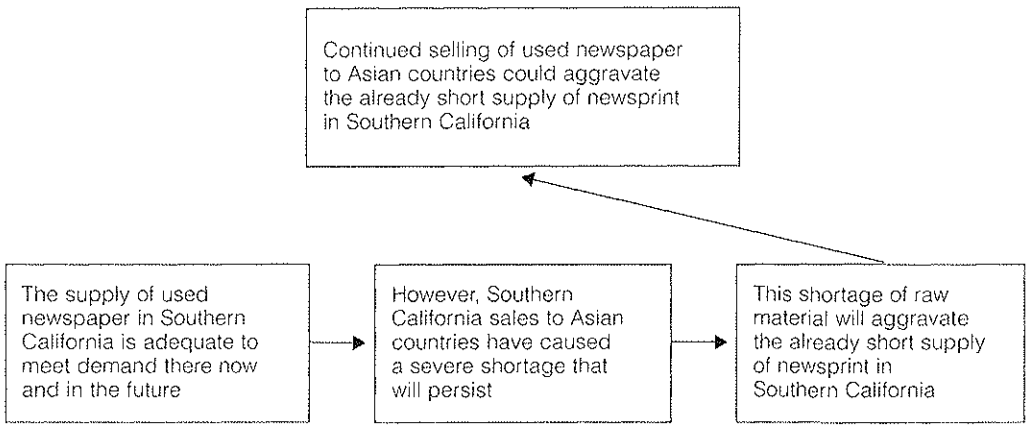


Exhibit 18 gives an example of a chained deductive argument that should probably go something like this:

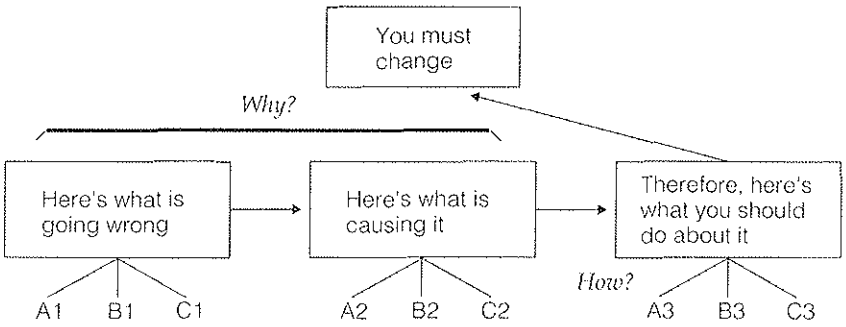
- We produce enough used newspaper to meet our own demand.
- But we have sold the product to other countries.
- Therefore we have a shortage.
- A shortage of used newspaper causes a shortage of newsprint.
- We have a shortage of used newspaper.
- Therefore we have a shortage of newsprint.

You can see how tedious this argument would be to read if you put in every step, and in general that is my major complaint about the use of deductive arguments in writing. They are tedious, primarily because they make a mystery story out of what should be a straightforward point.

When to Use it

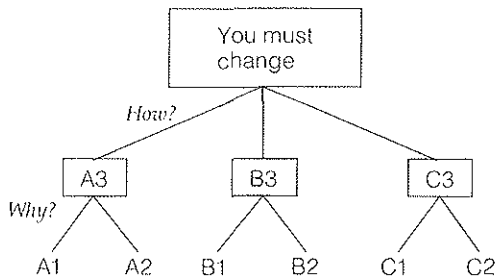
This slow-moving approach leads me to urge that, on the Key Line level, you try to avoid using a deductive argument, and strive instead always to present your message inductively. Why? Because it is easier on the reader.

Let's look at what you force the reader to do when you ask him to absorb a deductively organized report. Suppose you wish to tell him that he must change in some way. Your argument would look something like this:



To absorb your reasoning, the reader must first take in and hold the A-B-Cs of what is going wrong. I agree this is not a difficult task, but then you ask him to take the first A of what is going wrong, bring it over and relate it to the second A of what is causing it, and then hold *that* in his head while you make the same match for the Bs and Cs. Next you ask him to repeat the process, this time tying the first A of what is going wrong to the second A of what is causing it, and hauling the whole cartload to hitch to the third A of what to do about it. And the same with the Bs and Cs.

Not only do you make the reader wait a very long time to find out what he should do Monday morning, you also force him to reenact your entire problem-solving process before he receives his reward. It is almost as if you're saying to him, "I worked extremely hard to get this answer, and I'm going to make sure you know it." How much easier on everybody were you simply to present the same message inductively:



Here, instead of answering the "Why?" question first and the "How?" question second, you simply reverse the order. And now, while you may indeed have deductive

arguments at the lower levels, still you have answered the reader's major question directly, with clear fences in your thinking between subject areas, and all information on each subject in one place.

But isn't deductive reasoning stronger and tighter than inductive, people usually ask me. Not at all. It is all the same reasoning; we are only discussing how to lay it out on the page.

To explain it another way, at the end of the problem-solving process you will have come up with a set of ideas that can be sorted onto a Recommendation Worksheet like that shown in Exhibit 19. The worksheet permits you to visualize the fact that you have gathered findings that led you to draw conclusions from which you determined recommendations.

Exhibit 19 *Problem analysis is always deductive*

FINDINGS	CONCLUSIONS	RECOMMENDATIONS
Here's what is going wrong	Here's what is causing it	Here's what you should do about it
– Idea A1	– Idea A2	– Idea A3
– Idea B1	– Idea B2	– Idea B3
– Idea C1	– Idea C2	– Idea C3

These designations—findings, conclusions, recommendations—though widely used, are actually something of a misnomer. There is in fact no difference between a finding and a conclusion, other than a rather arbitrary labeling of level of abstraction. The summary of a group of findings is always a conclusion. Thus, you will have a set of findings and conclusions to support what is going wrong, and another set to support what is causing it.

In order to have come to these clusters of conclusions, you will have had to use three types of reasoning: induction, deduction (both of which you know about), and abduction. Abduction, as you can see in Appendix A, *Problem Solving in Structureless Situations*, occurs when you make a hypothesis and look for information to support it. But of course once you have the information, the reasoning becomes induction.

Your reasoning as laid out in the worksheet is complete—the only decision is how to present it. If you want to present the message deductively, you lay it out one column at a time, as shown on the previous page. If you want to present it inductively, you simply turn the whole thing 90 degrees to the left and put the recommendations on the Key Line, with the appropriate finding/conclusion grouped underneath.

The issue here is whether it is better to tell the reader *why* he should change and then how to go about it, or *that* he should change and why each change makes sense. As a rule of thumb, it is always better to present the action before the argument, since

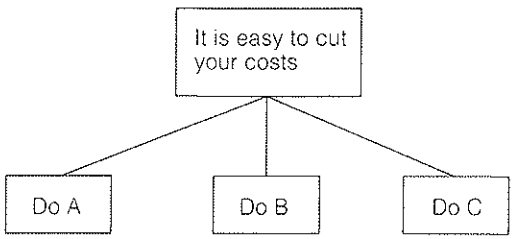
that is what the reader cares about, unless you face one of those rare cases in which it is the argument he really cares about.

When might the *argument* for any action be more important to the reader than the actions themselves? When the point you are making at the top of the pyramid is alien to the kind of thing he expects you to say. For example, imagine the following dialogues:

Situation 1

Him Tell me how to cut my costs
You It is very easy to cut your costs
Him How?
You Do A, do B, do C

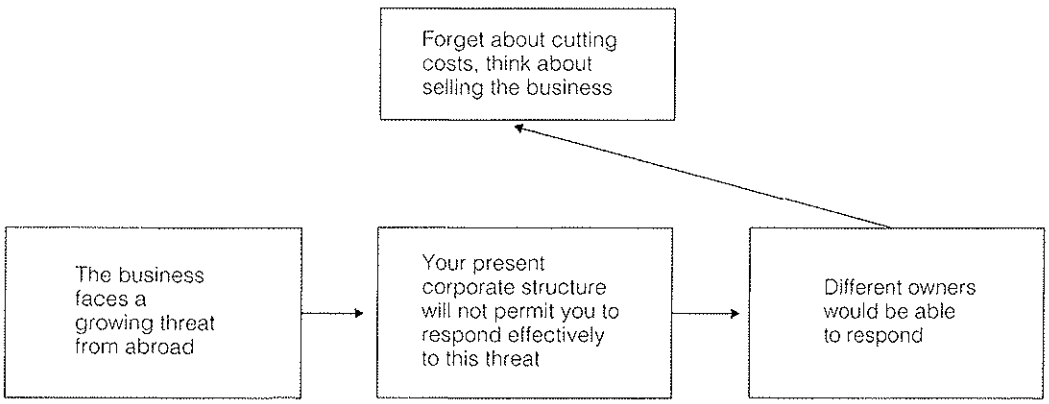
Obviously here we would want a standard inductive pyramid.



Situation 2

Him Tell me how to cut my costs
You Forget about cutting costs, you should be thinking about selling this business
Him Why? How? Are you sure? Good God!

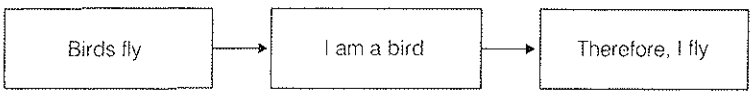
Here you clearly need a deductive argument.



The only other time I can think of when you automatically know you need a deductive argument at the Key Line level is when the reader is incapable of understanding the action without prior explanation, as in David Hertz's article on how to do risk

analysis that we looked at in Chapter 4 (page 38). Here the reader needed to know the reasoning that underlies the analytical approach before he could understand the actual steps in the approach.

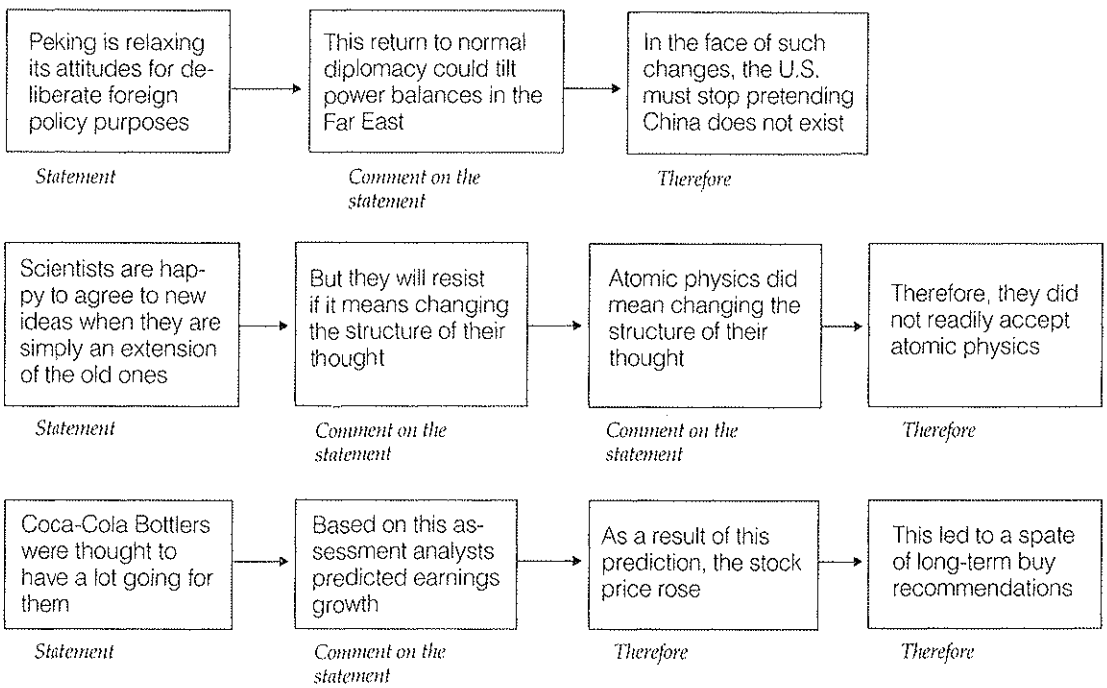
Few of the recipients of business documents fall into either class, however, so that in general you will find yourself wanting to structure the Key Line of your pyramid to form an inductive argument. Note that I am talking only about the Key Line here, and not about lower levels. Deductive arguments are very easy to absorb if they reach you directly:



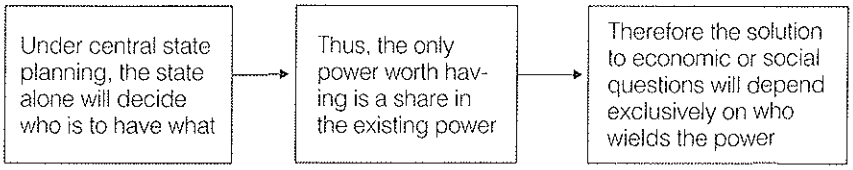
When, however, you must plough through 10 or 12 pages between the first point and the second, and between the second and the third, then they lose their instant clarity. Consequently, you want to push deductive reasoning as low in the pyramid as possible, to limit intervening information to the minimum. At the paragraph level deductive arguments are lovely, and present an easy-to-follow flow; but inductive reasoning is always easier to absorb at higher levels.

If you do decide to use deductive reasoning at the lower levels of your pyramid, there are some permissible types of chained argument, beyond the basic syllogistic form, of which you should be aware (Exhibit 20).

Exhibit 20 *The deductive form can vary*



The deductive form can vary, continued



The only rules to bear in mind in chaining deductive arguments are that (a) you cannot have more than four points in a deductive argument, and (b) you cannot chain together more than two "therefore" points. Actually, you *can* do both if you want to (the French philosophers do so all the time), but the groupings will be too heavy to summarize effectively. So if you wish to make proper summaries, you must limit your deductive groupings to no more than four points.

INDUCTIVE REASONING

Inductive reasoning is much more difficult to do well than is deductive reasoning, since it is a more creative activity. In inductive reasoning the mind notices that several different things (ideas, events, facts) are similar in some way, brings them together in a group, and comments on the significance of their similarity.

In the example of the Polish tanks cited in Exhibit 16 on page 61, the events were all defined as warlike movements against Poland. Hence, the inference that Poland was about to be invaded. If, however, the events had been defined as preparations by Poland's allies to attack the rest of Europe, a quite different inference would have been in order.

This brings us to the two major skills one must develop to think creatively in the inductive form:

- Defining the ideas in the grouping
- Identifying the misfits among them.

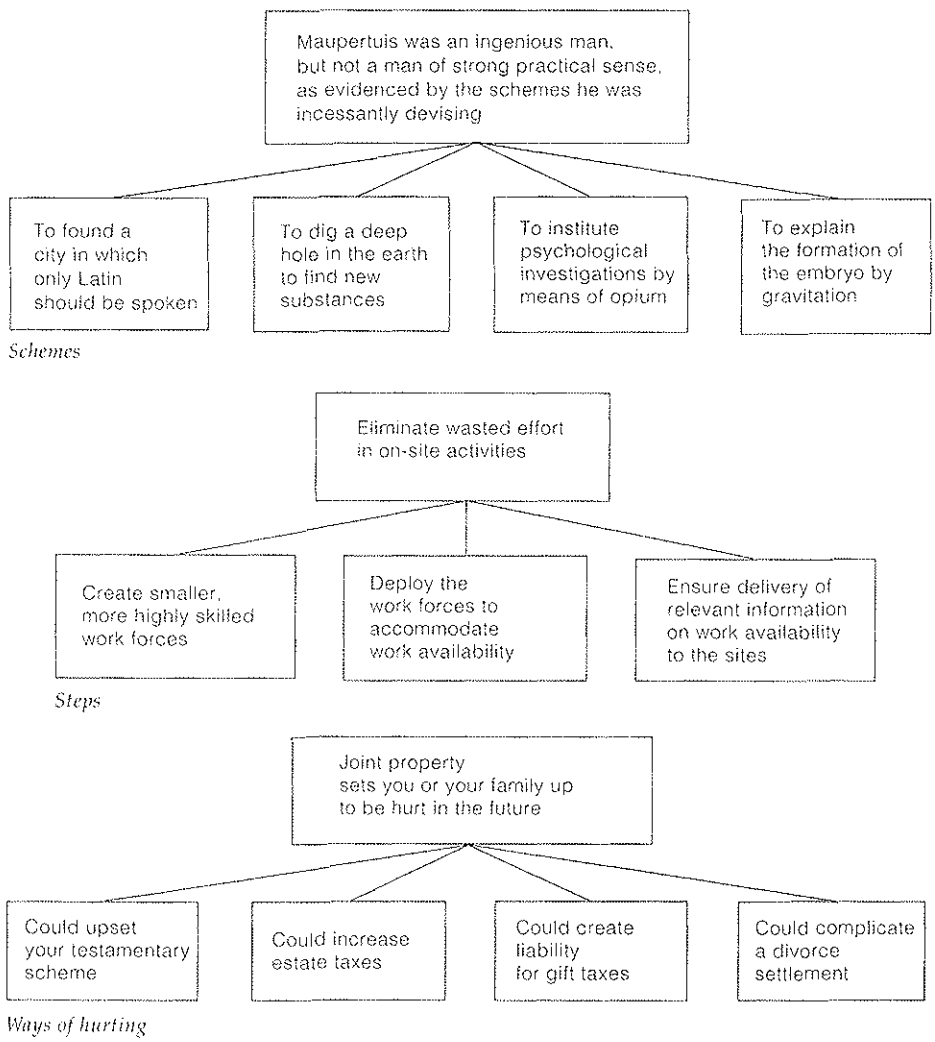
How to do both things with precision is explained in considerable detail in Chapter 6, *Imposing Logical Order*. But at this point you need only understand the rudiments of how it is done to be able to distinguish the process from deduction.

How It Works

The key technique is to find one word that describes the kind of idea in your grouping. This word will always be a plural noun (a) because any "kind of" thing will always be a noun, and (b) because you will always have more than one of the "kind of" idea in your grouping. "Warlike movements" is a plural noun in this sense, and so is "preparations for attack."

If you look at the inductive groupings in Exhibit 21, you will easily see that each can be described by a plural noun: schemes, steps, ways of hurting. And in each case again you can see that none of the ideas in any of the three groupings is a misfit; each fits the description of the plural noun.

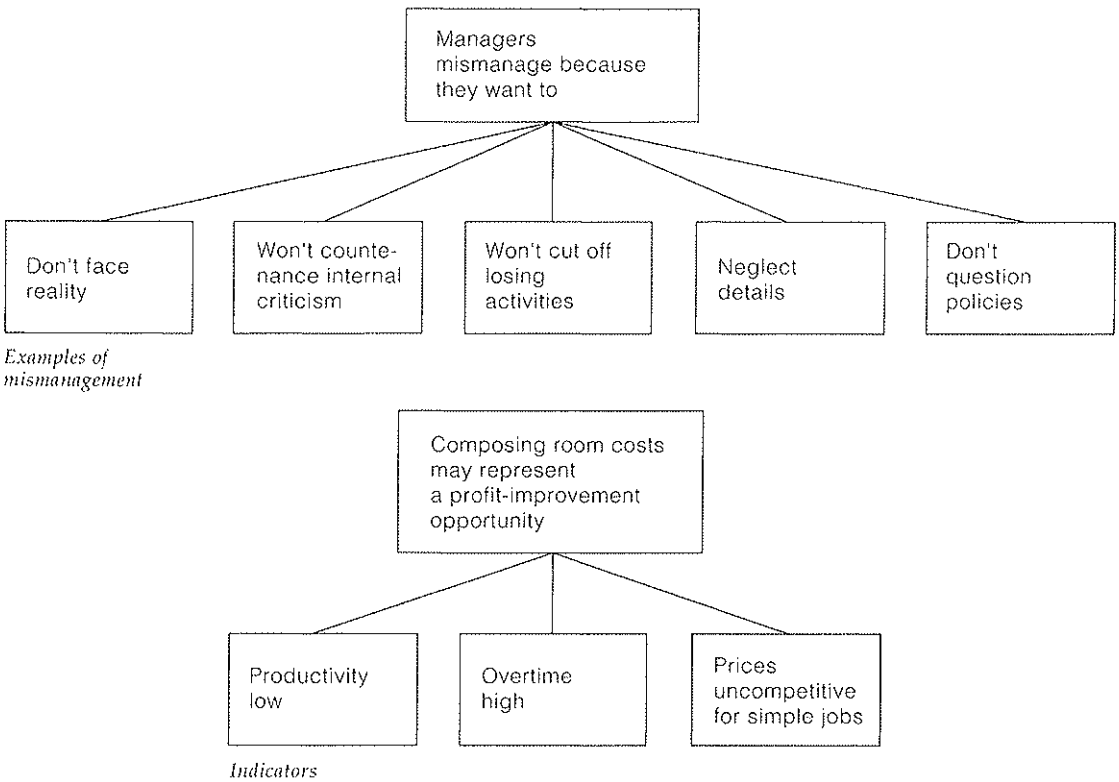
Exhibit 21 *Inductive arguments group similar ideas*



The next step is always to check your reasoning, and this is done by questioning from the bottom up. For example, if you see a man who wants to found a city in which only Latin should be spoken, dig a deep hole in the center of the earth, etc., can you infer that this is an ingenious man, but not a man of strong practical sense? Yes, you can, or at least you could when the statement was originally written.

By contrast, consider the two examples in Exhibit 22. If you see managers who don't face reality, won't countenance criticism, etc., can you infer that they mismanage because they want to? Certainly not; it's sloppy reasoning.

Exhibit 22 *The inference should not go beyond the grouping*



What about the next one? If productivity is low, overtime high, and prices uncompetitive, can you infer that you have a profit-improvement opportunity? Perhaps, but I can think of three or four other things that could also be labeled indicators of a profit-improvement opportunity. In that case, you know the overall point is at too high a level of abstraction in relationship to the three points grouped below, since it does not make a statement *specifically and only about them.*

In fact, however, this is really a deductive argument masquerading as an inductive one, as you may have remembered from Chapter 3. The low productivity led to high overtime, which led to uncompetitive prices. (Whenever you have only one piece of evidence for anything, you are forced to deal with it deductively.) Thus, the point implied at the top is something like "Our prices are high because our productivity is low."

How It Differs

I'm sure you can see now how very different deduction and induction are, and how easily you can tell the difference. Remember, if you are thinking deductively, your second point will always comment on the subject or predicate of the first. If it does not so comment, you should be able to classify it by the same plural noun as the first, to test that you have a proper inductive grouping.

To demonstrate, I recently ran across two so-called deductive fallacies in a logic book, which went as follows:

> All Communists are proponents of socialized medicine
> Some members of the administration are proponents of socialized medicine
> *Therefore, some members of the administration are Communists.*
>
> All rabbits are very fast runners
> Some horses are very fast runners
> *Therefore, some horses are rabbits.*

In both cases, I'm sure you will instantly be able to see that the second point does *not* make a comment on the first point, so these ideas cannot be deductively related. What the second point does do in each case is to add another member to the classification (plural noun) established in the first point. Placing ideas in classes is defining them by a plural noun, and you know that that is induction.

To test yourself, suppose I say to you:

> Japanese businessmen are escalating their drive for the Chinese market.

Can you pick which of the next two points relates inductively to this, and which one deductively?

> The fact that American businessmen will soon be entering the market is sure to stimulate them further.
>
> American businessmen are escalating their drive for the Chinese market.

Clearly the first is deductive and the second inductive.

Note that with inductive ideas you generally either hold the subject constant and vary the predicate, or hold the predicate constant and vary the subject. For example, you could say:

> Japanese businessmen are escalating their drive for the Chinese market.
>
> American businessmen are escalating their drive for the Chinese market.
>
> German businessmen are escalating their drive for the Chinese market.
>
> *The smart money is moving into China.*

or you could say:

> Japanese businessmen are escalating their drive for the Chinese market.
> Japanese businessmen are escalating their drive for the Indonesian market.
> Japanese businessmen are escalating their drive for the Australian market.
> *Japanese businessmen are moving aggressively into Southeast Asia.*

Look at yet a third example:

> Japanese businessmen are escalating their drive for the Chinese market.
> Japanese businessmen are escalating their drive for the Icelandic market.
> Japanese businessmen are escalating their drive for the Peruvian market.

What is the same about China, Iceland, and Peru—other than the fact that Japanese businessmen are entering their markets? Nothing. These facts are not related, and thus cannot inspire you to draw a more general insight. In stating them you are simply passing along *news*, and there is no place for news in a document whose purpose is to communicate your thinking.

This distinction between news and thinking is an important one to bear in mind, since the fact that the "news" is true tends to lead some writers to believe that such points can be legitimately included in a document. Remember back to Chapter 1: the only justification for including a point in a document is that, together with others, it helps to explain or defend a higher point. This higher point can legitimately be derived from a grouping of ideas only if the ideas in the grouping are properly related, either inductively (similar subjects or predicates) or deductively (the second point comments on the first).

To summarize, a deductive relationship is established if the second point comments on the first, leading to a "therefore" conclusion. Inductive relationship resides in the structure of the sentence. Look for similarity in either the subjects or the predicates, and draw your inference based on that similarity. If there is no similarity, you can draw no inference, and the points do not belong in the document.

It is interesting to note that whether you couple the ideas to form an inductive grouping or the beginning of a deductive line of reasoning, your mind automatically expects either a summarizing statement or a "therefore" point. This expectation of the mind for deductive and inductive arguments to be completed often leads the reader to project his thinking ahead, to formulate what he thinks your next point will be. If his projected point is different from your actual point, he can become both confused and annoyed. Consequently, you want to make sure that he will easily recognize the direction in which your thinking is tending by giving him the top point before you state the ideas grouped below.

THE MINTO PYRAMID PRINCIPLE

PART TWO
LOGIC IN THINKING

INTRODUCTION TO PART 2 LOGIC IN THINKING

As you try to apply the Minto Pyramid Principle to a specific writing task, you should on most occasions, with a bit of practice, have little difficulty in determining the overall structure of your thinking. You can generally identify your Subject without much effort, specify the reader's Question, think through the Situation and the Complication, and state your top point and Key Line points. Then, using the question/answer approach, you can relatively easily work out the ideas on the next level below each Key Line idea.

With your pyramid structured to one level below the Key Line, I recommend that you just sit down and write, rather than attempting to develop more of the lower level ideas until you reach that point in the writing. When you have finished writing, however, you are still going to have to look carefully at the structure of the points you have put into prose. Here you are likely to find yourself guilty of making two common errors:

- Presenting lists of loosely related points ("ten steps" or "five problems"), justified as similar because they match the plural noun rather than because they share an internal logic
- Topping off the lists with an intellectually blank assertion ("The company has five problems") instead of a revealing insight.

The tendency to list appears to be universal, and as a technique for getting a rough approximation of your thinking out where it can be looked at critically, it is fine. The trick is not to stop there, but to go further and make sure that the ideas in each grouping actually possess an intrinsic logic, and then explicitly to state the insight that that logical relationship implies.

Looking critically at groupings of ideas requires hard work—indeed it is the essence of the thinking process—which is no doubt why it is so often ignored. But ignoring it means that you never quite say what you mean to your reader and—worse—you never quite grasp the essence of your own thinking. That in turn not only wastes time and resources but, sadly, could mean you don't achieve all of the major insights and breakthroughs in thinking that are possible.

Think, for instance, of how much longer it would take someone to decide the actions needed to eliminate the problems implied in the first list below as opposed to the second:

Original

Buyers are unhappy with the sales and inventory system reports

1. Report frequency is inappropriate
2. Inventory data are unreliable
3. Inventory data are too late
4. Inventory data cannot be matched to sales data
5. They want reports with better formats
6. They want elimination of meaningless data
7. They want exception highlighting
8. They want to have to do fewer calculations manually

Rewritten

The sales and inventory system produces a useless monthly report

1. It contains unreliable data
2. It presents it in an unwieldy format
3. It issues it too late to permit practical action

The techniques for deriving the second set of points from the first are the subject of this section. They are, first, to find the logical framework that holds the ideas together and dictates their order (Chapter 6, *Imposing Logical Order*), and then to tease out the insight inherent in the set of ideas—the so-called inductive leap (Chapter 7, *Summarizing Grouped Ideas*).

Together, they constitute a process I call Hard-Headed Thinking. It is not an easy process either to learn or to apply, but it is an essential skill to master if you are truly to know your own thinking. For this reason I urge you to take the time required to make sure you understand the techniques.

6 IMPOSING LOGICAL ORDER

The second rule of the Minto Pyramid Principle is that ideas in any grouping must be in logical order. The logical order rule helps to make sure that the ideas you have brought together truly belong together, and that you have not left any out. In other words, you may have grouped together a set of ideas that can legitimately be labeled "steps," but unless you can put them in one-two-three order, you cannot be certain they are all part of the same process and that they are all there.

In deductive groupings, of course, finding the logical order is no problem, since it is the order imposed by the structure of the argument. In inductive groupings, however, you have a choice of how to order. Thus, you need to know how to make the choice, and how to judge that you have made the right choice.

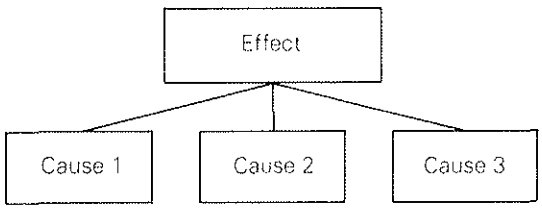
To this end you must understand that, in theory, ideas grouped together in writing are never brought there by chance. They are always picked out by your mind because it sees them as having a logical relationship. For example:

- Three steps to solve a problem
- Three key factors for success in an industry
- Three problems in a company.

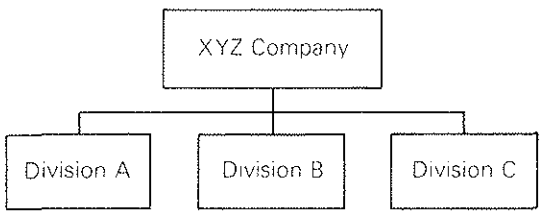
To see such relationships, the mind must have performed a logical analysis. In that case, the order you choose should reflect the analytical activity that your mind performed to create the grouping. The mind can perform only three analytical activities of this nature (Exhibit 23).

Exhibit 23 *The source of the grouping* . . . *dictates its order*

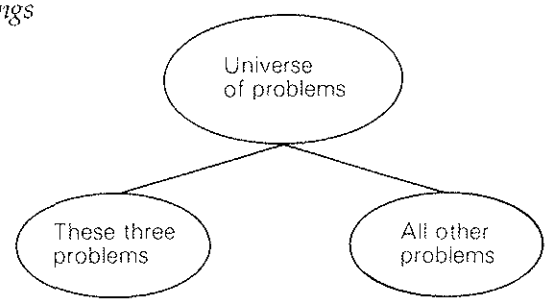
1. Determine the causes of an effect *Time Order*



2. Divide a whole into its parts *Structural Order*



3. Classify like things *Degree Order*



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1. It can determine the causes of an effect. Whenever you make statements in writing that tell the reader to do something—fire the sales manager, say, or delegate profit responsibility to the regions—you do so because you believe the action will have a particular effect. You have determined in advance the effect you want to achieve, and then identified the action necessary to achieve it.

When several actions are together required to achieve the effect (e.g., three steps to solve a problem), they become a process or a system—the set of causes that in concert create the effect. The steps required to complete the process or implement the system can only be carried out one at a time, over time. Thus, a grouping of steps that represents a process or system always goes in *time order,* and the summary of the set of actions is always the effect of carrying out the actions.

2. *It can divide a whole into its parts.* You are familiar with this technique in creating organization charts or picturing the structure of an industry. If you are going to determine the "key factors for success in an industry", for example, you must first visualize the structure of that industry. Having done so, you determine what must be done well to succeed in each part of it. The resulting grouping of three or four key factors would then logically be ordered to match the order of the parts shown in the structure you visualized. This is *structural order.*

3. *It can classify like things together.* Whenever you say that a company "has three problems", you are not speaking literal truth. The company has many problems—some total universe of problems—of which you have classified three as being noteworthy in some way compared to the others. You are saying that each possesses a characteristic by which you are able to identify it as a particular kind of problem —say because each one is the result of a refusal to delegate authority.

All three problems are the same in that each possesses this characteristic, but they are all different in that each possesses it to a different degree. (If they possessed it to the same degree, you could not distinguish them on this basis.) Because they are different, therefore, you rank them in the order in which they possess to the greatest degree whatever characteristic made you identify them as problems in the first place. This is variously called degree order, comparative order, or order of importance.

These orders can be applied singly or in combination, but one of them must always be present in a grouping to justify its existence. In other words, given that any grouping of ideas can have been created only through applying one of these three analytical frameworks, any grouping of ideas must have as its backbone one of these three orders. Thus you want deliberately to look for an order in each of your groupings. If you don't find one, it tells you instantly that there is something wrong with the grouping. And your knowledge of the underlying framework can help you sort out the problem.

Let me tell you more about each ordering framework and how you can use them to check your thinking.

TIME ORDER

Time order would seem to be the simplest order of all to understand, for it is certainly the most pervasively used as the basis for a grouping of ideas. What you do in a time-ordered grouping is reflect the steps a person must take to achieve a particular effect, in the order in which he must take them—one, two, three.

The ideas in the grouping can be either actual steps or other action ideas of some kind (e.g., recommendations, objectives), or they can be conclusions drawn with the idea of an underlying process in mind. Problems of clarity arise in the first case because people don't distinguish cause from effect when they list their ideas, and in the second because they don't recognize that their thinking employed a process as its base.

Distinguishing Cause from Effect

The most common problem is failing to distinguish cause from effect. As I said earlier, a set of actions is taken only to achieve a specific effect. But in a long process with many steps, there will be many levels of cause and effect. To illustrate, look at this list of steps that a consultant proposed to help a company improve its productivity:

> The following steps would be undertaken in Phase I
>
> 1. Interview key management and supervisory personnel
> 2. Trace and document transactions and work flow
> 3. Identify all critical functions
> 4. Analyze organizational structure
> 5. Understand services and performance measures
> 6. Assess performance levels of business functions
> 7. Identify problems and causes
> 8. Identify and justify potential opportunity areas for productivity improvement

First of all, there are too many points in the grouping for the process to be grasped easily. Remember the Magic Number Seven.

(Actually, I recommend limiting your groupings to no more than four or five points. The likelihood is remote that, in a grouping larger than five, some of the ideas would not be more closely related. You obscure some of your thinking if you do not point out that relationship. For example, to note that of the Ten Commandments some are "sins against God" and some are "sins against man" communicates an insight missed by simply displaying a standard list of the Ten.)

In addition, while the eight steps listed above would indeed be taken in the order shown, they are not all on the same level of abstraction. Some of the steps are taken to create the end products stated in other steps, so that they imply mini-processes, with clear beginnings and endings, within the overall process. Not to distinguish these mini-processes obscures what the author is in fact saying he will do. What he really means to say is something like this:

> In Phase I we will identify potential opportunities to improve your productivity
>
> 1. Determine the critical functions of the business (3)
>   - Interview key personnel (1)
>   - Trace and document transactions and work flow (2)

2. Identify weaknesses in performing those functions (7)
   - Specify the organization structure (4)
   - Determine services and performance measures (5)
   - Assess performance levels (6)
3. Recommend practical ways to change (8)

Now he can check whether the steps included are appropriate, and whether he has omitted any. For example, are these three steps the only steps one needs to carry out to identify potential opportunities for productivity improvement? If I interview key personnel and trace and document transactions and work flow, is that sufficient for me to determine the critical functions of the business?

The trick to avoiding cause-effect mistakes is to visualize yourself actually taking the action you are writing about in each case, and state what you will have in your hand at the end of the action. You can then judge whether you must take one particular action *before* you can take the next, or whether you must take it *in order to achieve* the next.

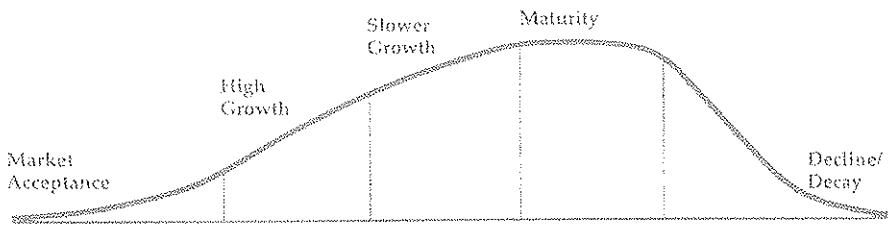
Visualizing yourself taking the action is a great time saver in making rapid judgments about whether your grouping says what you meant it to say. Take this list for example:

Strategic planning involves the recognition of a timing cycle

1. Perception of need
2. Development of strategy for creating responsive product/service
3. Implementation
4. Market acceptance and high growth
5. Slower growth, the onset of maturity
6. High cash generation
7. Decline/decay

The first step in looking at it critically is to see whether you understand the process being described. Put yourself in the doer's place, and imagine yourself taking the action: "First I perceive the need, then I develop a strategy, then I implement the strategy then I . . . " Oops, here is a problem.

What the author appears to have done is to group three actions the company takes and four things that result. If you look at the results for a moment, you can see that they reflect the normal product life cycle curve in which you get:



Thus he must mean his fourth step to be something like "Assess the market's reaction," with these points as the path of that reaction. (We do have one point left over: high cash generation. This, however, is normally a characteristic of the onset of maturity, so does not belong in the list at all). The list would now read like this:

Strategic planning involves the recognition of a cycle

1. Perception of need
2. Development of a strategy for creating responsive product/service
3. Implementation of the strategy
4. Assessment of market reaction
5. Change of strategy to match the reaction

Revealing the Underlying Process

Recognizing that you are drawing conclusions based on an underlying process can be extremely helpful in clarifying your real message. People frequently make lists of conclusions that allude to rather than state the points they are actually trying to make, as in this example:

Business definition . . .

1. Relies heavily on creative processes
   - Demand segmentation
   - Supply segmentation
2. Changes over time
   - Early vs late stages of life cycle
   - Competitive dynamics
3. Is not necessarily unique in a given industry
4. Influenced by marketer's own strength vs. competition

Even though there is no point at the top of this grouping, it is easy to assume that the set of points has a message, since the language is understandable and each of the four ideas presented makes sense individually. But if you specifically try to justify the order of the points (first you segment, then you respond to change, then you assess your position) you can see the message is something to do with how you define a business, and you will thus be able to determine a clearer way to get it across:

Defining what business you are in requires careful analysis:

1. To identify market segments
2. To assess your competitive position in each segment
3. To track changes in position over time

The author can now make a reasoned judgment as to whether he has omitted any of the steps required to define a business. In this case the steps are probably complete, but the act of forcing your thinking back to its source does lead you to know the questions to ask to check someone else's thinking. To illustrate, suppose one of your

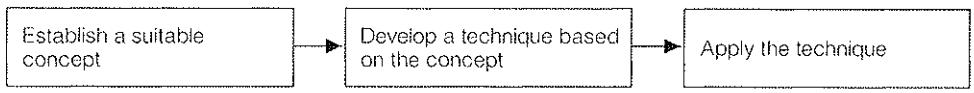
people came to you and said, "Here is what I intend to say at the presentation tomorrow. Is it okay?"

> The traditional focus of investment evaluation—comparing future returns and probable costs
>
> 1. Is often technically unsound
> 2. Rests on simplistic concepts
> 3. Results in misleading prescriptions

If you look immediately for order, you can see that time order might have been in the back of his mind, with the last point going on top because it is the effect of the other two actions:

> The traditional focus of investment evaluation results in misleading prescriptions
>
> 1. It rests on simplistic concepts
> 2. It is often technically unsound

However, to go from the first grouping to the second, you will have had to visualize the process that served as the source of the grouping.



You can now see that the author makes a comment on the first and second steps in the process, but not on the third. He may not have made a comment on the third (a) because there is nothing wrong with the way they apply the technique or (b) because he forgot. The likelihood is he forgot. But you as the person checking the thinking would know to ask, "Is there anything wrong with the way they apply the technique?" because you would have traced the thinking back to its source.

Sometimes you will find that time order is imposed on an existing structure, so that the structure itself dictates the number and sequence of steps. To that end let's look at structural order.

STRUCTURAL ORDER

First, what exactly is structural order? It is the order that reflects what you see once you have visualized something—either by diagram or map, by drawing or photograph. The "something" you visualize can be real or conceptual, an object or a process. It must, however, have been properly divided to show its parts.

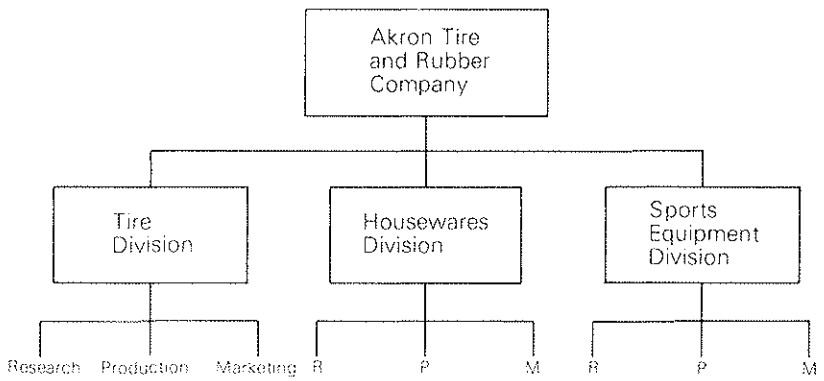
Creating a Structure

When you divide a whole into its parts—whether it be a physical whole or a conceptual one—you must make sure that the pieces you produce are:

- *Mutually exclusive* of each other
- *Collectively exhaustive* in terms of the whole.

I abbreviate this mouthful to MECE, but it is a concept you no doubt apply automatically every time you create an organization chart (Exhibit 24).

Exhibit 24 *Division creates mutually exclusive and collectively exhaustive units*



Mutually exclusive means that what goes on in the Tire Division is not duplicated in Housewares, and what goes on in Sports Equipment is distinct from both. In other words, no overlaps. Collectively exhaustive means that what goes on in all three divisions is everything that goes on in the Akron Tire and Rubber Company. In other words, nothing left out.

If you apply these rules when you divide, you can be sure that the structure you create shows all the pieces that must be described if you are to explain it to someone

else. Structural order at its simplest, then, means that you will describe the pieces of the structure as they appear on the diagram.

But how do you know what order to put them in on the diagram? This question most frequently arises when people draw organization charts. The order you put the boxes in will reflect the principle of division you employed to create them.

There are basically three ways to divide the activities of an organization—by the activities themselves (e.g., research, marketing, production), by the location in which the activities take place (e.g., Eastern Region, Midwest, West), or by sets of activities directed to a particular product, market, or customer (e.g., Tires, Housewares, Sports Equipment).

- ¶ If you divide to emphasize the *activities,* they reflect a process, and thus go in time order.
- ¶ If you divide to emphasize *location,* they go in structural order, reflecting the realities of geography.
- ¶ If you divide to emphasize activities relating to a single *product/market,* you have classified, and thus the ideas go in degree order, by whatever measure you decide is relevant for ranking (e.g., sales volume, investment size).

Suppose you had created this set of departments in reorganizing a city government:

1. Housing
2. Transportation
3. Education
4. Recreation
5. Personal Health
6. Environmental Health

These are all the activities for which you think the city should be responsible, placed in the order in which the city government would have to be concerned about its populace if it were starting the city from scratch. Forcing yourself to impose an order of this sort, particularly if you are creating something new like an organization, permits you to check that you have been collectively exhaustive for your purposes.

In dividing things other than organizations, however, your purpose is generally to analyze how those things function. You are therefore dividing by functioning part, and you would show the parts in the order in which they would be expected to perform that function. Thus, if you were discussing a radar set, you would order its parts to reflect the order of their functioning:

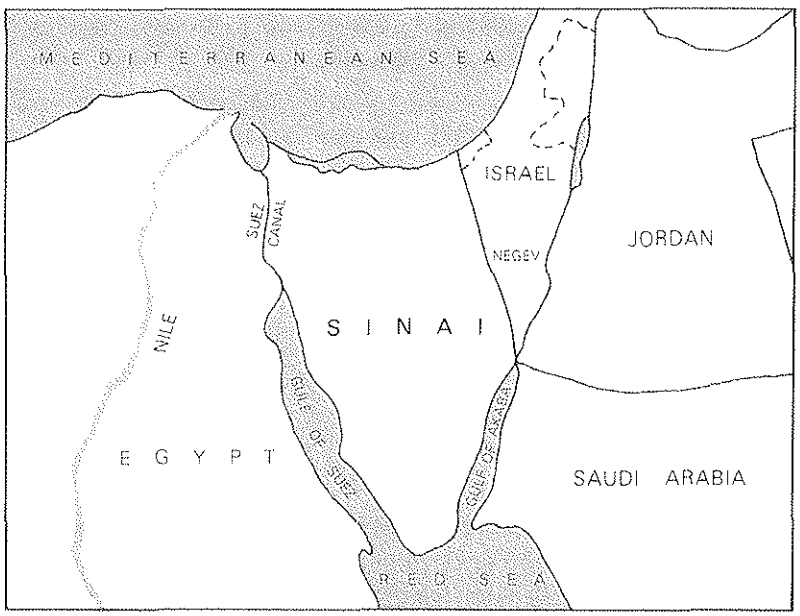
1. Modulator
2. Radio-frequency oscillator
3. Antenna with suitable scanning mechanism
4. Receiver
5. Indicator

The modulator takes in power that the oscillator then gives out. The antenna concentrates that power into a beam, the receiver takes signals passed back from the beam's scanner, and the indicator in turn presents the data.

Describing a Structure

Once the structure is set up, one way to describe it is to follow it from the top down and from left to right, describing each part in the order in which it appears. This is the form you would follow if you were giving a technical description of the radar set described above, or any other technical description of a piece of machinery.

However, you can also impose a process order on your description. To illustrate, here is a map of the Sinai Desert. The passage following describes its structure:



On any map of the Middle East, the Sinai Peninsula sits dead center, an almost perfect inverted isosceles triangle, a sharp wedge that seems to cleave Africa from Arab Asia. Depending on one's political persuasion, it can be seen in several other contexts: as an eastern arm of Egypt, holy Egyptian soil, severed from its motherland only a little more than a century ago by the Suez Canal; as a natural and logical southern extension of Israel, a massive broadening of the Negev Desert; as a northern adjunct of Saudi Arabia, separated from that immensity by the narrow Gulf of Akaba; or, simply, as an ancient land bridge connecting East and West, a handy route for caravans and invading armies.*

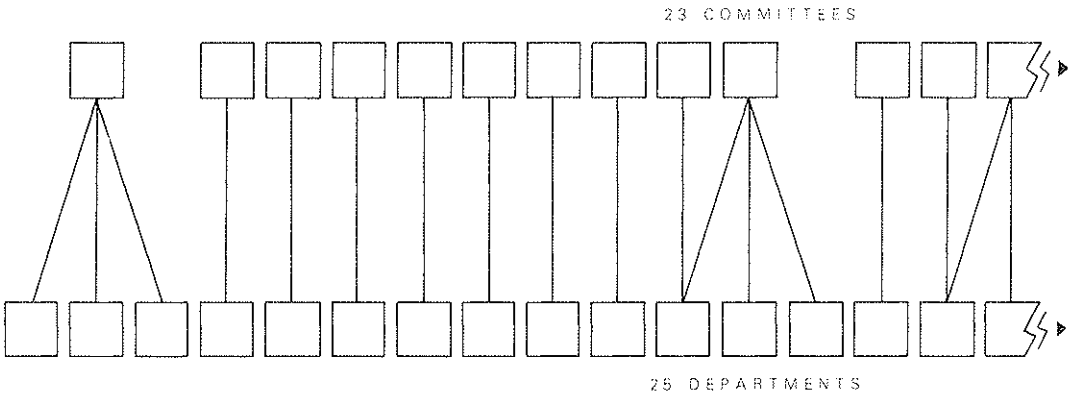
*From *The New Yorker*, June 4, 1979, "Sinai: The Great and Terrible Wilderness" by Burton Bernstein.

The "contexts" in which one can view the Sinai Peninsula are listed in the order in which the eye would comprehend them as it looked at the map, starting in the upper left-hand corner and moving clockwise. First it would see the split from Egypt, then

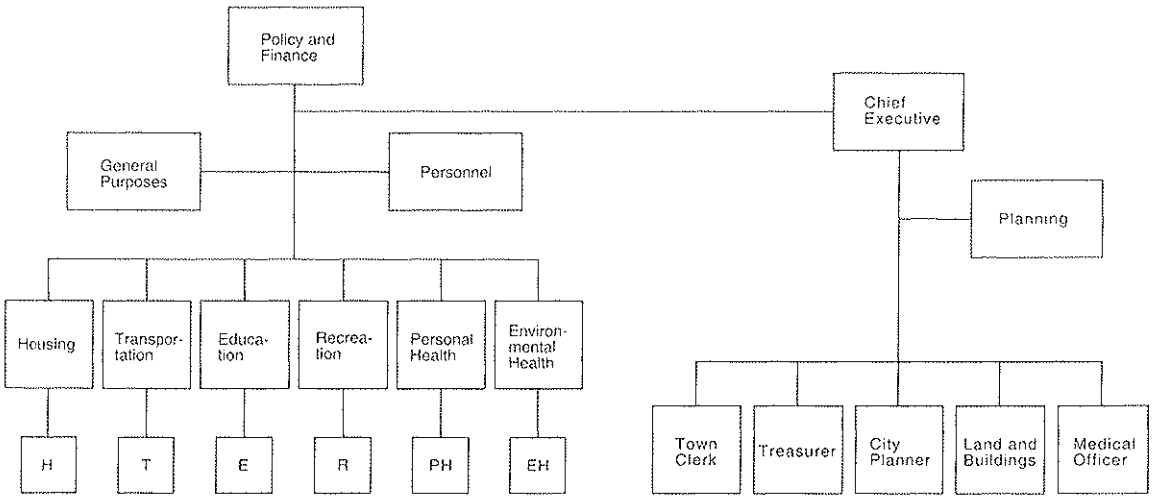
the southern part of Israel, then the top of Saudi Arabia. Finally, it would travel back from east to west. Thus, the author has visualized the process a reader would follow in examining the map, and reflected that order in his description.

Recommending Changes to a Structure

Visualizing a process in relationship to a structure is a common device, particularly if you are writing to recommend changes to an existing structure. Suppose, for example, you had the structure of a city government shown here, with 25 departments reporting to 23 committees . . .



. . . and you were recommending replacing it with that shown here, of essentially 6 departments reporting to 6 committees, with an administrative arm.



It requires four changes to get from the first structure to the second. In what order should you state them as recommendations in a report? They are all equally important, so you cannot put them in order of importance. They must, in theory, all be done at the same time, so that time order is not appropriate.

The order that makes most sense in a case like this is the order in which you would draw the elements on a blank sheet of paper if you were presenting them to the reader one at a time. Thus, the first step would be to group the many committees into the six shown on the left under a Policy and Finance Committee. The second step would be to group the departments to match. The third step would be to create the two units that will support the P&F Committee. And the final one would be to create the administrative team, under a Chief Executive, needed to manage the paperwork.

The actual wording in a final report would be as follows:

> To improve the City's system of management and to enable it to perform its important tasks more effectively, the Council should take the following actions:
>
> 1. Assign responsibility for direct services to the people to six committees, under a Policy and Finance Committee
> 2. Group departments into six program administrations, each under a program director, to match the Committee structure
> 3. Structure administrative and other internal services by
>   - Creating a General Purposes Committee
>   - Directing the Personnel Committee into a more positive role designed to improve the motivation and spirit of city workers
> 4. Appoint a Chief Executive to be head of the City's permanent staff

Using the Concept to Clarify Thinking

As with time order, you can use the concept of structural order to help you sort out faulty logic in a grouping. Suppose you are the manager of a major city's department of transportation, and have this set of steps presented to you for approval:

> The objectives for the assignment, as we understand them, are:
>
> 1. To review and analyze field operations in maintenance and construction areas
> 2. To determine if adequate organizational and managerial flexibility exists to allow field engineers to properly respond to day-to-day operating problems and demands from the public
> 3. To review and analyze the areas of preliminary engineering, road and bridge design, environmental process, right-of-way acquisition and traffic management
> 4. To review and analyze the organization structure of the Department
> 5. To identify the strengths and weaknesses within each study area

Why that order? Where did these ideas come from? First of all, you can see that point 5 does not go with the others because it refers to them all, so we can eliminate that

from consideration. Then let's see what subjects he's talking about in the others:

1. Maintenance
   Construction
2. Day-to-day operations
3. Preliminary engineering
   Road and bridge design
   Environmental process
   Right-of-way acquisition
   Traffic management
4. Organization structure

If you attempt to see them in terms of a process concerned with roadbuilding, etc., you would assume the steps involved would be these:

1. Design
2. Construct
3. Operate
4. Maintain

In that case, perhaps the author meant to say that the objective for the assignment would be to:

> Determine whether the Department is properly organized and managed to carry out its activities, of which there are four.

I want to give you one more example. It is a very difficult one, in that the list is almost a free association of points. However, it does demonstrate that the author had a structure in his head before he began to write; but because he was not overtly aware of it, he could not use it to guide his thinking.

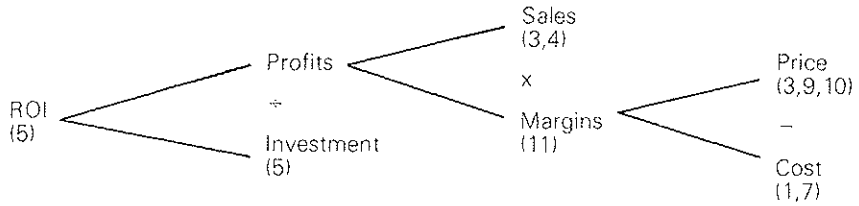
The list was written by someone in a soft-drinks manufacturing company that had decided to put its product into plastic rather than glass bottles. However, it had two choices about how to go about it: buy the plastic bottles on the outside or create its own plastic bottle manufacturing capability. The author was against creating its own manufacturing capability.

> There are a number of internal/external risks and constraints that preclude an investment in any plastic bottle venture:
>
> 1. Technical risk—undeveloped design problems
> 2. Environmental risk—legislated nonreturnable ban
> 3. Premium risk—consumer rejection of a premium package during an inflationary period
> 4. Nonexclusivity: (a) outside sales diminish marketing impact, (b) sales to others may be difficult with our ownership
> 5. Capital intensiveness—the project has an extremely long payback period
> 6. Negative EPS impact (accentuated by leveraging)
> 7. Near-term R&D expense
> 8. Corporate cash flow problems—funds needed for expansion of existing business
> 9. Price slashing by glass manufacturers and/or lower than projected glass inflation rate vis-à-vis plastic
> 10. Other plastic manufacturers may effect dramatic price cuts upon entry due to lower return on investment goals (many are in 7–10% range)
> 11. Entry in the container industry which is typified by lower margins and in which the key is to be the lowest cost producer. Implicit in the entry is the probable downward reassessment of our P/E

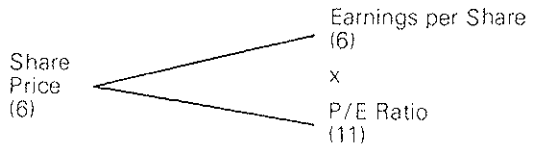
This looks like a terrible mess, but the sorting process for fixing it would be the same as in other cases. First, go down the list and see why he is complaining about each point. Why is each one considered to be a bad thing? This will allow you to see some patterns.

1. High cost
2. Prevented by law from doing
3. Force lower sales or lower price
4. Low sales
5. High investment, low ROI
6. Lower EPS
7. High cost
8. Must borrow
9. Force lower price
10. Force lower price
11. Low margins, lower P/E

Whenever business people talk about things like costs, sales, prices, investment, and ROI, they are implying their knowledge of the relationships between these things as displayed on a standard ROI tree. If you impose the relevant points on such a tree, it is relatively easy to see what his message is: The project would have a negative impact on ROI.



The points about Earnings per Share and Price/Earnings Ratio suggest another tree and another message: The project would have a negative impact on EPS.



We are then left with two points: No. 8, we must borrow, and No. 2, there is a risk that we won't be able to sell because of a ban on nonreturnable bottles. The borrowing point can be fitted into the tree if I add another layer below profits to make room for taxes and interest. I've left this out to make the technique easier to comprehend.

If we try to put it all together, he appears to be saying:

We should think carefully before going into the plastic bottle business:

If there is a nonreturnable ban, we may be precluded from doing so

Even if there is no ban, it would dilute our profitability

Short term, lower EPS
Long term, lower ROI

Now that you see what the message is, you can scrutinize the individual points to make sure they are properly supported. I would guess they are not, only because I know that this particular company did go into the plastic bottle business and has made an immense success of it. What was left out of the author's thinking, apparently, was an assessment of the favorable effect of plastic containers on the sales of the product.

The point I wish to reiterate is that you cannot tell that nonsense is being written unless you first impose a structure on it. It is the imposition of the structure that permits you to see flaws and omissions.

DEGREE ORDER

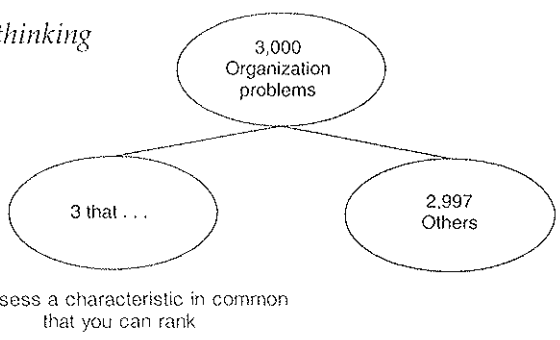
Finally, we come to degree order, most commonly called order of importance. This is the order you impose on a grouping when it brings together a set of things you have classified as being alike because they possess a characteristic in common—e.g., three problems, four reasons, five variables. And it is here that the tendency to list rather than to think becomes most acute.

Creating Proper Class Groupings

In classifying, when you say, "The company has three problems," your mind automatically separates these three problems from all other possible problems the company has or could have, creating a bifurcate structure like that shown in Exhibit 25. The two classes formed are by definition collectively exhaustive, and are of course meant to be mutually exclusive.

Exhibit 25

Classification limits your thinking to a narrow universe



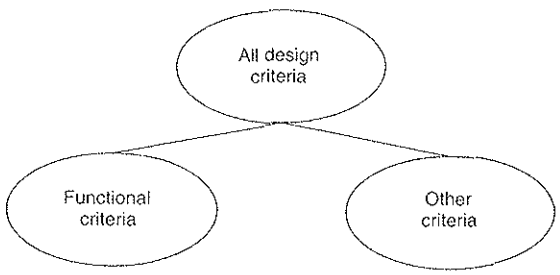
You prove they are mutually exclusive by defining quite specifically what characteristic they have in common, and then searching your knowledge to make sure you have included in your grouping all known items with this same characteristic. Then you place them in the order of the degree to which each possesses the characteristic by which you classified it—presenting the strongest one first.

Many people ask me whether, having determined the relative weight of the points, you always have to put the strongest one first. They point out that it would be more dramatic to put the weakest one first and work up to the strongest one. It would indeed be more dramatic, but being dramatic is an emotional consideration, not a logical one, and thus becomes a matter of style. In some cases you may quite legitimately decide to reverse the order for greater emotional impact.

In most cases, however, you put the strongest point first. Thus, suppose you write the following:

> Telecom's billing system should be designed to be broadly useful
>
> 1. Meet outside customer needs
> 2. Satisfy internal management requirements
> 3. Conform to outside regulations

Although the system must meet all three functional needs, the order here implies that the customer is more important to satisfy than the outside regulator. And underneath that assessment was this automatic classification:



It turns out that order based on class groupings is much less widely used in business writing than is either time order or structural order. This is not to say that classifying does not go on. Classifying is a ubiquitous human habit, and people classify everything they see as soon as they see it, simply by naming what it is. But they do not limit themselves to creating classes of points that are alike only by virtue of their possessing a *characteristic* in common. They also consider ideas to be alike, and therefore classifiable, if they were derived from the same *process* or drawn from the same *structure.*

This is a perfectly legitimate thing to do, provided that you are clear about the source of your grouping and reflect accordingly the order it imposes. Here, for example, is a point supported by three "reasons" . . .

> You should not consider a Vendor Capture strategy (Vendor Capture is trading your warehouse space in return for vendor exclusivity)

1. Your warehouses are neither large enough nor ideally located
2. Even if they were, the approach requires double handling
3. Even if you accept that, the possible admin-mileage savings are negligible

. . . but the order implies an existing structure (you have the warehouse, within which you have the process, from which you calculate the savings).

Identifying Improper Class Groupings

Identifying the proper source of a supposed class grouping can be a terrific aid in helping you clarify your real message. Suppose you came across this:

> The traditional financial focus of investment evaluation results in misleading prescriptions for corporate behavior:
>
> 1. Corporations should invest in all opportunities where probable returns exceed the cost of capital
> 2. Better quantification of future uncertainty and risk is the key to more effective resource allocation
> 3. Planning and capital budgeting are two separate processes – Capital budgeting is a financial activity
> 4. Top management's role is to challenge the numbers rather than the underlying thinking

Now apparently these four "misleading prescriptions" reflect commonly believed "rules of thumb" in corporations. But do they? If you reword them as results, they say, in abbreviated form:

> The financial focus:
>
> 1. Encourages corporations to invest
> 2. Emphasizes quantification of uncertainty
> 3. Separates planning and capital budgeting
> 4. Leads top management to focus on the numbers

All but the third can now be seen as part of a process of decision making, which would dictate time order, which in turn would lead to a clearer point at the top:

> The traditional financial focus of investment evaluation can result in poor resource allocation decisions because it:
>
> 1. Emphasizes quantification of future uncertainty and risk as the key to choosing among projects
> 2. Leads top management to focus on the numbers rather than on the underlying thinking
> 3. Encourages investment in all opportunities where probable returns exceed the cost of capital, ignoring other considerations

That one was easy to sort out because the kind of idea you were dealing with was easy to identify simply by reading it. Very often, however you will find yourself with a longer list of ideas classified as "reasons" or "problems", obscuring the fact

that it contains subclasses of varying kinds of reasons or problems. Remember this example from the introduction to this section:

Buyers are unhappy with the sales and inventory system reports

1. Report frequency is inappropriate
2. Inventory data are unreliable
3. Inventory data are too late
4. Inventory data cannot be matched to sales data
5. They want reports with better formats
6. They want elimination of meaningless data
7. They want exception highlighting
8. They want to do fewer calculations manually

The trick is to go through and sort them into rough categories, as a prelude to looking more critically. You get the categories by defining the *kind of problem* being discussed in each case. Thus, if "Report frequency is inappropriate," the type of problem indicated is "Bad timing," etc.

Complaint	Type of Problem
1. Report frequency is inappropriate 3. Inventory data are too late	1. Bad timing
2. Inventory data are unreliable 4. Inventory data cannot be matched to sales data 6. They want elimination of meaningless data	2. Poor data
5. They want better report formats 7. They want exception highlighting 8. They want to do fewer calculations manually	3. Unhelpful format

Now you see that the author is complaining about three types of problem with the reports: timing, data, and format. What order do they go in? That depends on whether you are talking about the process of preparing the report, the process of reading the report, or the process to follow in fixing the problem. In other words, the order reflects the process, and the process is dependent on the question being answered:

Why does the system produce a useless monthly report?

2. Gathers unreliable data
3. Presents it in an unwieldly format
1. Issues it too late to permit practical action

Why do buyers hate this report?

1. It comes late
3. When they get it, they can't find anything in it
2. When they find it, it's wrong

How are we going to fix the problem?

3. Decide the data we want, how it should be laid out
2. Make sure the data we include are reliable
1. Make sure we send the report out on time

This example has demonstrated the only process I know for getting at the real thinking underlying lists of ideas grouped as a class.

1. Identify the type of point being made
2. Group together those of the same type
3. Look for the order the set of groups implies.

Here is another example of the process in application:

The causes of New York's decline are many and complex. Among them are:

1. Wage rates higher than those that prevail elsewhere in the country
2. High energy, rent and land costs
3. Traffic congestion that forces up transportation costs
4. A lack of modern factory space
5. High taxes
6. Technological change
7. The competition of new centers of economic concentration in the Southwest and West
8. The refocusing of American economic and social life in the suburbs

Again, this is just a list rather than a communication of thinking. But the process for getting at the underlying thinking does work. First, look for similarities.

Complaint	Type of Problem
1. High wage rates 2. High energy, rent, land 3. High transportation 5. High taxes	1. High Costs
4. Lack of modern factory space to modernize into 6. Technological change (leading to need to modernize) 8. Business associates moved to suburbs	2. Unsuitability of area
7. New centers in the Southwest and West	3. Alternative choice

Then look for order and the message. In this case it is probably order of importance:

The causes of New York's decline are easy to trace

1. High costs
2. Difficult working conditions
3. Attractive alternatives

To summarize, I have tried to demonstrate with all these examples that checking order is a key means of checking the validity of a grouping. With any grouping of inductive ideas that you are reviewing for sense, always begin by running your eye quickly down the list. Do you find an order (time, structure, degree)? If not, can you identify the source of the grouping and thus impose one (process, structure, class)? If you have a long list, can you see similarities that allow you to make subgroupings, and impose an order on those?

Once you know a grouping of ideas is valid and complete, you are in a position to draw a logical inference from it, as explained in Chapter 7, *Summarizing Grouped Ideas.*

7 SUMMARIZING GROUPED IDEAS

We come at last to consider the first rule of the pyramid: ideas at each level must be summaries of the ideas grouped below them, because they were in fact derived from them.

When a grouping of ideas conveys a deductive argument, you can easily derive the idea above by making a simple summary that leans heavily on the final conclusion. But when the grouping is an inductive one, made up of a set of statements that you see as closely related in some way, the idea above must state what the relationship below implies. In other words, the act of summarizing the grouping is the act of *completing the thinking.*

Most writers simply group ideas, without completing the thinking. As we have seen, the tendency is to tie together ideas that have a general rather than a specific relationship, so that the ideas don't truly go together and therefore can't be summarized. But even if the ideas do go together, finding the summary idea that completes the thinking is hard work. Rather than do the work, people fall back on what I call intellectually blank assertions, such as:

- The company should have three objectives.
- There are two problems in the organization.
- We recommend five changes.

I call these statements intellectually blank because they do not in fact summarize the essence of the ideas grouped below them, they simply state the *kind* of idea that will be discussed. As such, they are deadly for both the reader and the writer.

AVOID INTELLECTUALLY BLANK ASSERTIONS

Intellectually blank assertions are deadly for the reader because they do not anchor his mind, they are not stimulating to read, and they present the very real danger that he will not in fact grasp what you are trying to say. To illustrate, here is an exchange I heard on the radio several years ago:

First Speaker John Wain says he believes he is well placed to write this biography of Samuel Johnson for three reasons:

The same poor Staffordshire background
The same education at Oxford
The same literary preferences.

Second Speaker I don't agree. There are no real truths in Staffordshire.

Then everybody laughed and the speakers went on to talk about something else. I thought, "I don't believe I heard that." Because look what happened. There you sit, waiting for an idea to be communicated, but instead you get an intellectually blank assertion ("for three reasons"). No idea yet. When you hear, "The same poor Staffordshire background. . . ," you assume it is the speaker's main point, and you barely listen to the other two points. So that if you were to reply, you'd reply to the point that you heard.

If instead the first speaker had said something like. . .

> John Wain says he is well placed to write this biography of Samuel Johnson because he and Johnson are essentially the same kind of people.

. . .then while you would have had to listen to the supporting points, you would have replied to the point that you heard. Instead, you have people absolutely talking past each other.

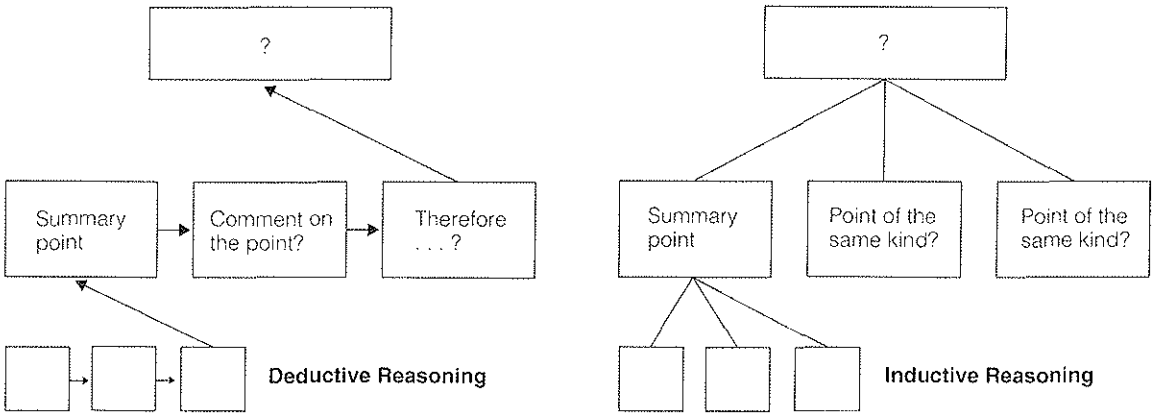
I have just illustrated what I mean by a summary point. You can see that your mind is marginally more ready to take in the information that follows if you hear "He did it because they are the same kind of people" than if you hear "He did it for three reasons." The second point sounds dead, it in fact is dead, and a document studded with such intellectually blank assertions is unbelievably boring to read.

But there is an even more important reason for avoiding intellectually blank assertions, and that is that they cover up incomplete thinking, and thus cheat you out of a wonderful opportunity to move your thinking forward in an orderly and creative way. One of the major values of formally summarizing a grouping is that it inevitably stimulates further thinking. Because once you have derived an insight, you are free intellectually to carry it forward in one of two ways:

- By commenting further on it (deduction)
- By finding others like it (induction)

But you must have a true summary statement derived from a proper grouping before the process can yield new insights (Exhibit 26).

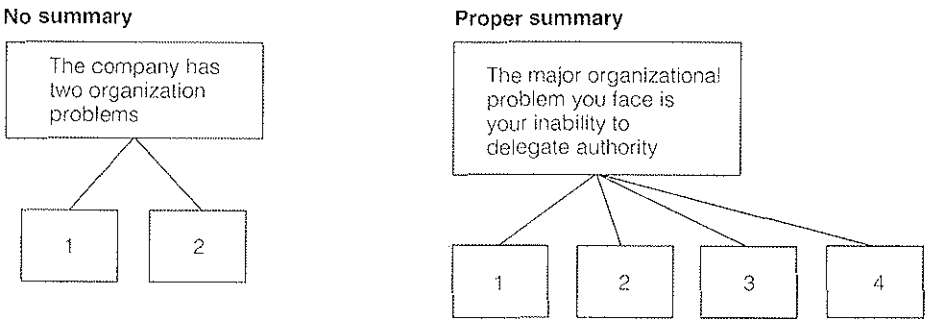
Exhibit 26 *A summary point inspires further thinking*



To illustrate, I once worked with someone who wrote, "The company has two organization problems," and then listed the two problems. The statement is intellectually blank, so he knew it had to be rewritten. And that would be easy to do provided the ideas grouped below were (a) both organization problems and (b) had a logical order. We could not find a logical order.

When pressed to state where the ideas came from and how they were alike, he discovered that in fact he wasn't talking generally about "organization problems." He was talking specifically about "areas of the organization where greater delegation is needed." Once he saw that, he realized that there were not two of these so-called problem areas, but four, only one of which he had properly identified. He was then able to realize the insight that the major organization problem the company faced was its inability to delegate authority (Exhibit 27). Now, having clearly identified the problem, he was free to focus his thinking on finding a solution to it.

Exhibit 27 *Intellectually blank assertions hide incomplete thinking*



For these reasons it is important that you make the effort to derive proper summary statements from your groupings. What does that mean you should do? First, as the previous chapter has shown, you have to check the origin of the grouping to make sure it is MECE (i.e., that its order reflects a valid process, structure, or classification). Then you need to look at the *kind of statement* you are making.

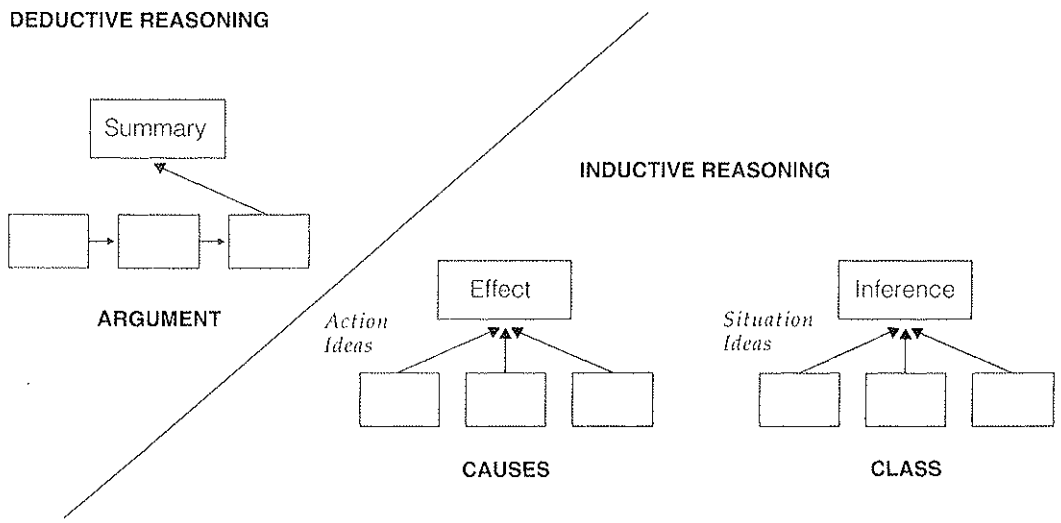
Regardless of the origin of the idea, its expression will be either as an action statement, telling the reader *to do* something, or as a situation statement, telling the reader *about* something.

- ¶ Summarize the action ideas by stating the effect of carrying out the actions
- ¶ Summarize the situation ideas by stating what their being similar implies.

As Exhibit 28 illustrates, summarizing inductive groupings means either stating the effect of actions or drawing an insight from conclusions.

Exhibit 28

The form of the argument dictates the process of summarizing



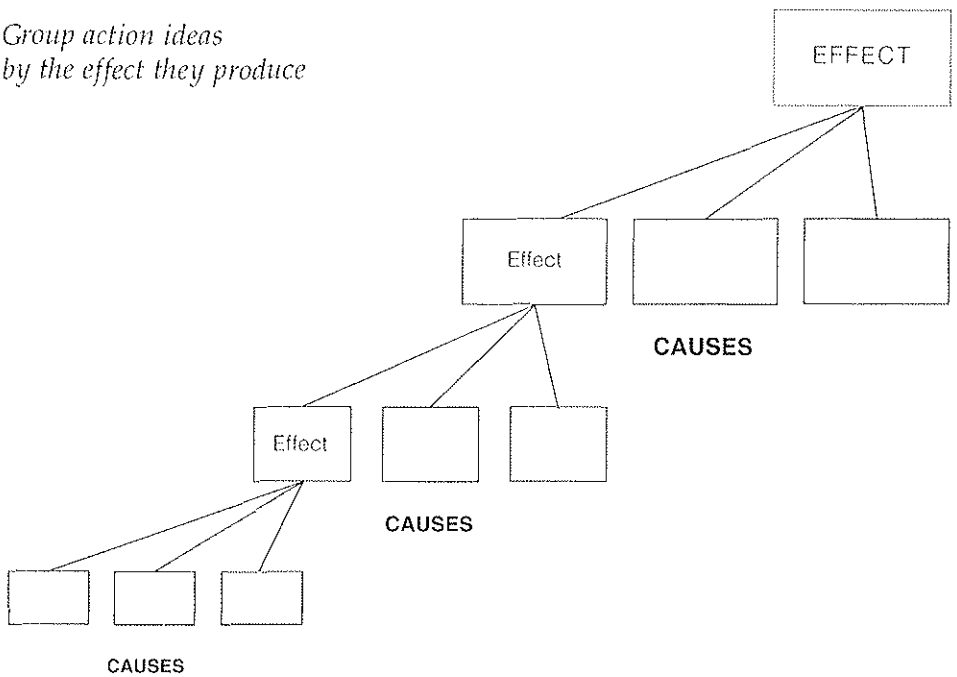
STATE THE EFFECT OF ACTIONS

The great majority of ideas in business writing are statements of actions—i.e., statements described by such plural nouns as steps, recommendations, objectives, or changes. You use them when writing manuals, developing action plans, describing systems, or spelling out how to go about solving a problem. But stating, relating, and summarizing action ideas to tell people clearly how to do something or how something works is the hardest thinking I know. Witness the plethora of unreadable manuals in the world and the failure of Management by Objectives as an administrative technique.

The difficulty lies in the way actions relate. We know that, since actions are always taken to achieve some purpose, the summary of a set of actions is always the effect of carrying out the actions. Any MECE set of actions plus the effect they produce will together form a unique closed system, in the sense that if one takes that particular set of actions, one can be certain they will produce the effect stated. And a process that includes a large number of actions will consist of a hierarchy of unique closed systems (Exhibit 29).

Exhibit 29

Group action ideas by the effect they produce



So far so good. The trouble is that the actions in any grouping are not significantly related to each other except in terms of the effect they together achieve. In other words, all actions look alike, whether they serve as cause or effect in the hierarchy. That is, they all imply the words "You should" or "We will", followed by a verb. This means you can't tell whether one action goes with another by looking at them individually. You can only make the judgment in light of the effect you intend them to achieve.

Thus, if you make a list of the actions you think you should take to achieve some objective, you can't judge whether you have left any out until you state the effect they are meant to achieve. But the effect is in turn dependent on the specific actions you bring together. This interdependence can make sorting out your thinking a bit of a nightmare, particularly if you are trying to describe a lengthy process with many steps and substeps.

Fortunately, there are some techniques available to ease the job of sorting out your thinking and presenting it clearly:

- Word each action as specifically as possible before you try to relate them
- Look for obvious cause-effect groupings, so that you can keep the steps in each grouping to five or fewer
- Derive the effect directly from the statements of the actions.

Make the Wording Specific

In a cause-effect hierarchy, you will be able to say about each grouping of ideas, starting at the bottom, "I do these specific things to achieve the above effect, I do the next higher group of things to achieve the next above effect," etc. Each of the points must be mutually exclusive from its neighbor—i.e., no overlaps—and each grouping of points must be collectively exhaustive in relation to its summary point.

To judge whether the grouping is collectively exhaustive, the effect must be so specifically stated that it implies an end product you can hold in your hand. In other words, you can't say, "I do these three things so that I can improve profits," because a 10 percent improvement and a 2 percent improvement are both an improvement in profits, but the steps you would need to take to achieve each would differ.

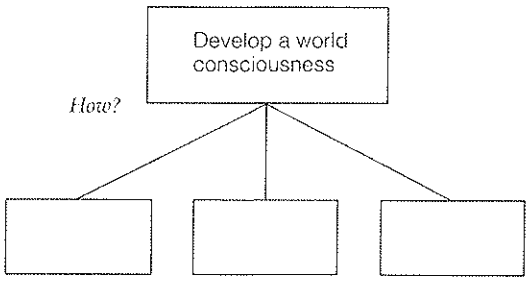
To be both clear to the reader and useful to yourself in checking your thinking, the point should say something like, "I do these three things to improve profits by 10 percent by January 15." The specificity of the statement permits you to judge whether the steps you have grouped together underneath would in fact bring about the end result.

You will not always, of course, have a clear numerical goal as your end product. But there will always be some tangible way to judge that the step has been completed. A useful technique is to visualize a real person actually taking the action, so that

you can see what he will have in his hand, and then word the action to reflect this end product. By that criterion, this sentence is almost pure gibberish:

> A world consciousness must be developed through which every individual realizes his role as a member of the world community.

What does that mean we are expected to do? How will we know when we have done it? Can you pick out someone who has "developed a world consciousness" from someone who has not? If you cannot, you do not know what the author actually means. Worse, you cannot work out the steps you would have to take to make it happen—i.e., you could not answer the question "How?" to fill in the boxes shown below. In that sense, the statement has no intellectual value, even though one might argue it has an emotional value.



The problem is worse, of course, if you are presenting a whole series of steps in vague language. Then it becomes almost impossible to work out what people are trying to get you to do. For example:

> To reduce the chance that conflict will turn to confrontation rather than healthy debate and consideration of issues on their merits, the Task Force must be able to:
>
> - Handle a variety of personal attitudes
> - Build favorable rapport with company personnel
> - Develop good interviewing skills
> - Plan and conduct interviews effectively
> - Learn to gain agreement on suggestions while maintaining an objective posture

What is it actually the Task Force must do to ensure healthy debate, etc.? If they do these five things, what will they accomplish? There are no visualizable end products here, no points at which you could definitely judge that you have accomplished what the step intended. And without knowing what the final objective is meant to be, you cannot judge that these five steps will in fact achieve it.

The only way around this kind of problem is to force yourself to look for an end product or cutoff point that will let you know when a step is completed, and word the point in those terms. To illustrate, Exhibit 30 shows examples of typically vague wordings, each translated into an end-product statement of what the author actually meant.

Exhibit 30 *Action ideas should be stated as end products*

What was said	*What was meant*
1. Strengthen regional effectiveness	1. Assign planning responsibility to the regions
2. Reduce accounts receivable	2. Establish a system for following up overdue accounts
3. Review management processes	3. Determine whether management processes need to be revised
4. Improve financial reporting	4. Install a system that gives early notice of change
5. Tackle strategic issues	5. Define a clear long-term strategy
6. Redeploy manpower resources	6. Place people in positions of comparable responsibility

You can see that each translation is easier to comprehend because it brings an image to mind. Being able to see an image makes a document much more interesting to read. More important for the writer, the end-product orientation stimulates further thinking.

For example, in number one, once I assume I have assigned the planning responsibility to the regions, I see them preparing annual plans. I am then stimulated to think whether anything else is needed along with these plans to accomplish some higher goal, if there is one.

¶ How will I know they are producing the right kind of plan?

¶ What happens when the plans come back to me?

Perhaps, in addition to assigning responsibility, I need to establish a system for setting annual planning objectives. And maybe I need to set up a planning review group to manage the whole planning process.

By contrast, if I visualize "strengthen regional effectiveness," what do I see? What does regional effectiveness look like? Nothing specific enough to indicate the obvious need for another step.

You may have noted in Exhibit 29 on page 98 that an action can serve as both a cause and an effect in a structure. Consequently, all steps should be written so that they imply an end product, regardless of their level in the hierarchy. Without the effect

specifically stated, you cannot make a judgment that you have included all the steps. For example, here is a set of steps recommending a new process:

1. Identify and pursue overdue accounts receivable
2. Age large and medium accounts regularly
3. Send reminders based on amount and time outstanding
4. Pursue overdue accounts
5. Settle long outstanding accounts more frequently at director level
6. Use a collection agency where clearly appropriate

The assumption is that if the company carries out the steps grouped below, it will be able to achieve the objective stated above. But the objective is unclear (how exactly do you "pursue" an overdue account?), as are most of the steps. When questioned, the person who wrote it said, "It's very simple," and drew this chart.

Time / Amt.	1 month	2 months	3 months	4 months	5 months	6 months
More than $100,000						
$10,000–100,000						
Less than $10,000						

"The accounts are overdue anywhere from 1 to 6 months, and anywhere from $100 to $100,000. What I want is this:

1. Those that are 1 month overdue, don't do anything with, just have Accounting send a bill in the normal way
2. Those that are 2 months overdue, have Accounting send a note
3. Those that are 3 months overdue, have the salesmen call in person
4. Those that are 4 months overdue, have the Directors call
5. The rest send to a collection agency"

"Oh, I see what I'm saying," he said, and produced this:

Reduce accounts receivable

1. Sort the accounts by age and amount
2. Assign responsibility for collection by seriousness
   - Accounting
   - Salesmen
   - Directors
   - Collection Agency

Certainly, this is clearer, but the point at the top is still not right: if you get one bill paid, you have reduced accounts receivable. And neither of the steps will lead directly to getting a bill paid. So what *will* the company accomplish if it does these

two things? What will it have in its hand at the end, so to speak? Probably a *system for following up overdue accounts.*

Now we come to the real value of the end-product wording as a guide to your thinking. The minute you see that what you are trying to get the company to do is to establish a system for following up overdue accounts, you can look at the two steps critically to determine whether they are sufficient to constitute a system. I would think at the very least you also need some sort of follow-up step, perhaps "Instruct the sales force to stop calling on the chronic nonpayers."

I can't emphasize too strongly the necessity of wording action ideas to reflect an end product. Unless you force this discipline on your wording, you simply cannot make an objective judgment that you have included in your steps all that should be there.

Sometimes people believe they can get around this need for specific wording by stating the actions as questions, since answering each question will produce an end product. That approach only adds a layer of complexity to your thinking, since you still have to visualize the end products and make sure that they are desirable.

For example:

> In order that both internal and external stakeholders will see the general benefits from a strategic alliance and thus sponsor it (stakeholder blessing), the following questions need to be addressed:
>
> 1. Are relevant ownership groups convinced that the venture will be desirable from their stockholder viewpoint?
> 2. What will be the effects on the company's reputation and the responses of the market?
> 3. Are key members of the top management teams likely to be willing to pursue the venture—by seeing how the alliance will not be a threat to their own power and careers?
> 4. To the extent that the alliance could represent a threat to any person or group, how can they be convinced to work toward the alliance's subsequent success?
> 5. How will customers, suppliers, existing alliance partners, financiers, and competitors react?

The easiest way to check whether these questions make sense as an approach is to imagine yourself sending out five different minions to gather the information for you. Each of the five comes back and deposits his answer on your desk. What you get is five different things, not necessarily related.

1	2	3	4	5
Stockholder views	Market response	Top Management response	Ways to get people to work for the alliance's success	Reactions from ▪ Customers ▪ Suppliers ▪ Existing partners ▪ Financiers ▪ Competitors

Instead, visualize yourself starting over with just one not overly bright minion to help you, limited time, and no budget. What is the most efficient way to direct that person's time, so that at the end you will have a plan for getting stakeholders to see the benefits of a strategic alliance? Would you not do this:

List the groups likely to be affected by the alliance	Estimate their reactions	Determine ways to convince them to work for the alliance's success
Stockholders Top management Customers Suppliers Partners Financiers Competitors		

Now anyone can understand the process, and step one is already finished. You need only send the minion out to fill in the second box, since you can't do the third until the second is done.

Again, the easiest way to clarify your thinking when dealing with action ideas is to visualize yourself actually taking the action, and word the step in terms of the end product you will have in your hand when you finish.

Distinguish the Levels of Action

Most people's tendency in laying out a set of steps is to list them all in the order in which they intend you to take them. But in doing so they generally combine causes and effects at the same level.

Accordingly, another technique you want to adopt is deliberately to distinguish the levels of action as you find them, so that you can limit the number of steps at any level to five or fewer. This makes it much easier to see the overall structure of a process, and also means you have fewer ideas for which to find the summary effect.

Distinguishing levels of action is relatively simple: an idea is at the same level if you expect the reader to take this action *before* he takes the next action listed; it is at a lower level if you expect him to take it *so that* he can produce the next action. Thus:

> A firm that wants to be on top of its telecommunications problems might benefit from the following program.
>
> 1. Analyze present facilities and usage
> 2. Identify the main business tasks needing more (or less) support
> 3. Set objectives for telecommunications
> 4. Provide researchers for review
> 5. Examine relationships with telecommunications suppliers
> 6. Identify main technological options
> 7. Control internal telecommunications costs
> 8. Scrutinize equipment policies

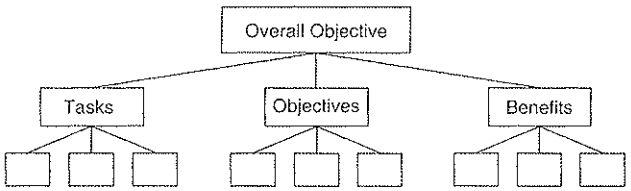
9. Examine existing communications links
10. Determine your organizational approach

It is tempting to leave this list as it is, given that all of the steps need to be taken if a company is to have a properly supportive telecommunications system. But if you sort out what is being done *before* from what is being done *so that*, you get a list like this:

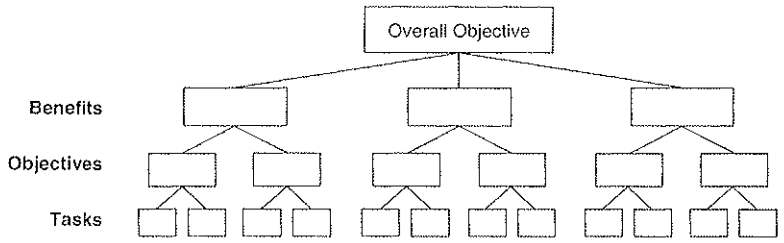
1. Set your telecommunications objectives (3)
   - Analyze present facilities and usage (1)
   - Identify the main business tasks needing support (2)
   - Examine existing communications links (9)
2. Set up a project team to choose the proper equipment (4)
   - Identify the main technological options (6)
   - Scrutinize equipment policies (8)
   - Examine relationships with telecommunications suppliers (5)
3. Create a framework for organizational control (10)
   - Appoint a central manager (?)
   - Establish a cost control system (7)

Now not only can you quickly grasp what the program involves, you can also make objective judgments about whether you have left any points out. For example, how does one identify the main business tasks needing support? Or create a framework for organizational control? And perhaps they need a central manager.

While you want to be sure to distinguish levels of action, you don't want to overdo the technique, which can easily happen—again because people have such a tendency to classify. There is a great love, especially among consulting firms, of specifically distinguishing Tasks vs Objectives vs Benefits of a project, like this:



This classifying of sets of actions assumes that there is a clear fence between the steps labeled Tasks and those labeled Objectives and Benefits, and that first you achieve the Tasks, then you achieve the Objectives, then you achieve the Benefits. That is indeed what you *do* do, but the hierarchy thus implied is this one.



As you can see, we are now slicing the pyramid horizontally instead of vertically, because accomplishing the Tasks leads to achievement of the Objectives, and accomplishing the Objectives leads to achievement of the Benefits. But the effect on clarifying the thinking is no better. We are now implying that labeling the levels of abstraction will allow us to identify the kind of action that goes at each level. In other words, we should be able to tell by looking at it whether any specific action is an Objective or a Benefit or a Task.

But that of course is nonsense. We already know that action ideas cannot be classified; they can only legitimately be united by their ability to bring about a specific effect. Classifying action ideas will inevitably lead to repetition, since there is nothing intrinsic to distinguish a Task from an Objective from a Benefit. The only legitimate way to organize is around end-product actions.

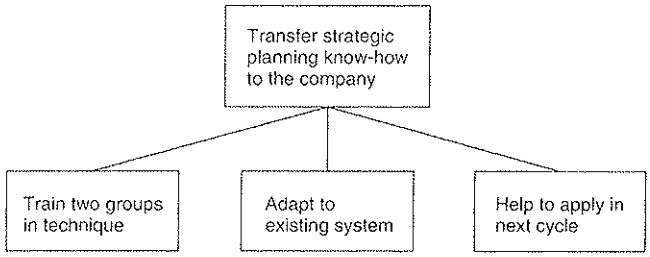
To demonstrate, here is an instance of labeling actions that was used by a consulting firm hired to train a client's people to do strategic planning. In abbreviated form, the firm had agreed to perform six tasks, which required them to set five objectives, achieving which they presumed would produce three benefits.

Tasks	Objectives	Benefits
Train in modern methods of strategic management Transfer know-how and concepts Participate as moderators in planning seminars Suggest refinements to the existing planning system Identify gaps in strategic information Prepare staff to incorporate results in the next planning cycle	Transfer strategic planning and management know-how Adapt the methodology to existing planning systems Incorporate know-how in a strategic planning handbook Contribute to creating a climate in which strategic thinking plays a natural role in decision making Put you in a position to formulate strategies that will ensure long-term strengthening of competitiveness	Two core groups fully versed in strategic management techniques/able to put them into practice Transfer of strategic planning know-how more rapidly and cost-efficiently than recruiting a strategic planning manager Incorporation of the newly acquired expertise in the next planning cycle

A good technique for sorting out a set of ideas like this is to pare them to their barest essence, and then find the repetitions. If we apply the technique to this grouping, what do we get?

Tasks	Objectives	Benefits
1. Train 2. Transfer know-how 3. Advise 4. Suggest refinements 5. Identify gaps 6. Incorporate for next year	7. Transfer know-how 8. Adapt to existing planning system 9. Incorporate in handbook 10. Create climate for strategic thinking 11. Put you in position to formulate good strategies	12. Two groups able to do it 13. Transfer of know-how cheaply 14. Incorporation in next year's cycle

Now both the repetitions and levels of abstraction are relatively easy to see, leading to a pyramid structured around end-product actions.



And with a little work you would end up saying this:

> We will rapidly transfer strategic planning know-how to your company (2, 7, 13)
>
> 1. Train two product advisory groups in the techniques and concepts of strategic planning (1, 12)
> 2. Adapt these concepts to your existing planning system (4, 5, 8, 9)
> 3. Work with your people to apply the concepts during the next planning cycle (3, 6, 10, 11, 14)

You have now organized the thinking around end-product actions, not around categories of ideas.

Summarize Directly

Once you have the steps in your process sorted out, you come to what is the absolute hardest part of dealing with action ideas—stating the overall summary effect. I can't really give you a fool-proof technique for doing this, other than to say that

- The grouping must be MECE
- The summary must state the direct effect of carrying out the actions, worded to imply an end product.

You can then check the thinking by testing the points against each other. In the above example, if the company has the trained people, the appropriate planning system, and the handbook, it certainly should be in a position to come up with the right kinds of strategies. That, of course, is not the same thing as saying they *will* be able to come up with the right kinds of strategies. Nor do my two rules guarantee that you will be able to come up with the right kind of summary.

The best I can do is give you some before-and-after examples, and show you how I thought about them. Here is a vaguely worded one.

> To improve Equity sales in the London market, we should
>
> - Rank revenue potential of customers by area
> - Decide degrees of penetration wanted in each area
> - Reassign salesmen accordingly

I look at a grouping like this and say, "Okay, doing these things won't improve sales,

because if I get just one additional sale I have improved sales." Then I ask, "If I rank revenue, decide penetration, reassign salesmen—I do that in order to make what happen? Or to put it differently, if I don't do it, what won't I have made happen?" And I come up with

> To improve Equity sales in the London market, we need to focus our resources on customers with the highest potential
> (How do we do that?)

This is a much more interesting statement to read because it presents an idea rather than an intellectually blank assertion. The reader's mind is more ready to take in the ideas that follow because you have forced him to ask "How?", and you yourself can check that the steps stated will achieve the result.

Here's another example of vague wording:

> To improve the training environment for blue collar workers in the UK
>
> ¶ Demonstrate to top management that Government considers work force training to be of top importance
> ¶ Establish a framework within which suppliers will develop appropriate courses
> ¶ Create upward pressure from the work force

In this case, because the sentences are complex, you need to work out the essence of what they say before you try to move up. To do that, you first isolate the real subjects of each sentence:

- ¶ Top management
- ¶ Suppliers
- ¶ Work force

Then ask yourself, why are we discussing these three subjects and no others? What characteristic do they possess in common? They all appear to be participants in the training system in the U.K.

Next, identify how each sentence says we should act on that particular participant:

- ¶ Demonstrate the importance to
- ¶ Establish a framework for
- ¶ Create pressure from

What's the same about these three types of activity? They are all incentives of a sort. With some confidence, we can now summarize to say:

> To improve the training environment for blue collar workers in the U.K., we must provide the incentives that will encourage each participant in the training system to support training.
> (What does that mean we would do?)

Again, we have a much more interesting statement, and one that both pulls the reader through your reasoning and permits checking for completeness.

Let me tie this whole discussion together with this final, obscurely worded example about the product development problems in a company whose consumer products have a heavy R&D content.

The issues facing Product Development

1. How to incorporate the desired features, from the corporation and the marketplace point of view, into the product development process
2. How to priortise and allocate resources between various projects
3. How to shorten development times while taking into account the requirements from the marketing people
4. How to organize and harness the R&D organization resources to meet the end points of development lead time
5. How to keep people informed (in and out of the corporation) in order to maximize coherence and strength of the product deliverables
6. How to motivate the scientists and managers into product development partnership

If we follow our normal process, step one is to state the points at their barest, so that they can be thought about more easily.

1. Develop the right products
2. Allocate the right resources
3. Do it quickly
4. Do it on time
5. Market it effectively
6. Get scientists/managers to cooperate

Step two is to identify the subgroups.

1. Identify products that will meet market requirements
   - Incorporate the desired features (1)
   - Meet marketing people's requirements (3b)
2. Develop them in the shortest possible time (3a)
   - Allocate the right resources (2)
   - Organize R&D to meet deadlines (4)
   - Motivate scientist/manager cooperation (6)
3. Offer them to the market in the most compelling way (5)

Step three is to find the summary point. If we do these three things, what will we get? Apparently, we will get a product the market wants, before anybody else, gleaning the highest possible sales.

Before we can tie these together, we have to think back to what most business people know about product development in general. We know that there is a premium for being first to the market with a product, and that the life cycles of products are constantly shrinking, so that cutting product development time is a real priority for a company. With that as the background, I would presume the author is trying to say something like:

The major issue facing product development is whether we can organize ourselves to outperform the competition in responding to the marketplace. (What do we have to do to respond quickly and effectively?)

1. Can we identify the right products for our market?
2. Can we cut unnecessary delays in getting the product to that market?
3. Can we mount a marketing effort that will maximize sales?

By this point it must be more than obvious to you that clearly communicating action ideas is not easy. It demands hard thinking. But the alternative is really so unpleasant for the reader that you will want to make the effort to follow the steps we have been discussing: word the points as end products, distinguish the levels of abstraction, and draw the effect directly from the actions.

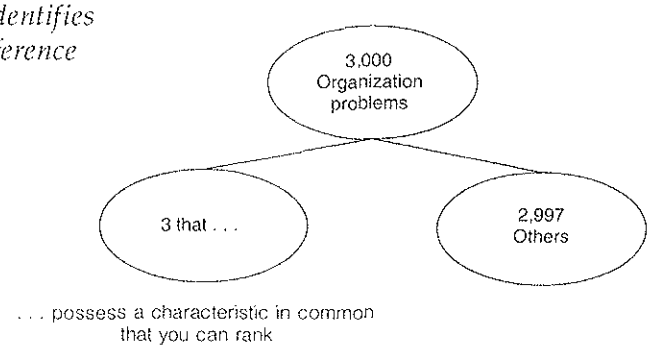
You need to follow a similar, but less arduous, process in drawing an inference from a set of conclusions. Here, instead of trying to visualize the effect a set of actions will achieve, you are trying to grasp the insight a set of similar kinds of statement implies.

LOOK FOR THE SIMILARITY IN CONCLUSIONS

We noted earlier that ideas in writing are either action ideas or situation ideas—they either tell the reader to do something or that something is the case. If they are situation ideas, they will be statements that can be described by such plural nouns as reasons, or problems, or conclusions. You will have classified the ideas in this manner because you believed each of them to possess a characteristic in common.

To review what you read about classifying in Chapter 6, *Imposing Logical Order,* when you say something like "The company has three organization problems," you have in effect taken the entire universe of possible organization problems that the company could have, and made a bifurcate division of them (Exhibit 31).

Exhibit 31
Classifying identifies a distinct difference



Thus, classifying them as organization problems does not reveal anything significant about them. It is only step one in the thinking process, a simple listing of points that may be worth thinking about. Step two is to prove that these points actually do belong together by identifying the common link that justifies separating them from the others. Step three is to spell out the wider significance of the existence of that common link—that is, to create a new idea. Only then can you say that you have completed your thinking.

Most writers of business documents stop at step one, often because they don't realize that steps two and three are required, but usually because drawing insights from a list of points is hard work. You have to

- Find the structural similarity that ties the ideas together
- Look for closer links between the similarities
- Make the inductive leap to the summary point.

Find the Structural Similarity

Ideas belong together if they share a common property. But, as you saw in Chapter 5 on deduction and induction, ideas are always written in sentences that have a subject/predicate structure. Thus, the common property linking a grouping of ideas will usually show up because the sentences all:

- Discuss the same kind of subject
- Express the same kind of predicate (action or object)
- Imply the same kind of judgment.

Here "same kind of" does not mean exactly the same. It means falling into the same category or able to be described by the same plural noun.

If the subjects are all exactly the same, you look for a similarity by which to group among the predicates. If the actions or objects are all exactly the same, you look for a similarity by which to group among the subjects. If neither the subjects nor the predicates are the same, you look for similarity in the judgment implied by the statement.

Identifying the actual similarity is harder than it sounds, particularly if the points are nicely phrased, because the language blocks your critical thinking. We all know about, and have been soothed by, the Five Forces, the Seven Ss, the Four Ps, the Seven Habits, etc. The trick is to get behind the language to see the bare structure of what is being said.

Here, for example, is the sort of thing one reads all the time:

> There are four characteristics of the new Planning and Control system:
>
> 1. The planning cycle and its attendant control mechanism should be on an annual basis

2. The plans should be built up via an integrated system
3. The plans should be compiled in the context of a strong directional lead from the top of the division
4. The planning system will distinguish between the current practice and the planned change

On first reading, this set of points sounds plausible. The language used is rather elegant, which tends to make one think the author is communicating something useful. But there is still that intellectually blank assertion at the top.

If we try to get behind the language to see what the list actually communicates, we see first that the subjects of the sentences are all the same—plans or the planning system. The connection between the ideas, then, must lie in the predicates, which say that the planning system is

- Annual
- Integrated
- Top down
- Distinguishes between present/future

Now, stripped of its style, you can see that the grouping does not really support a message. You ask yourself, What's significant about a planning system that possesses these four characteristics? The fact that the points are true is not sufficient to make them relevant, and the blank assertion prevents us from thinking further about them.

This impetus to think further is, as I said at the beginning of the chapter, the major reason for drawing inferences in the first place. A grouping of ideas like the planning and control system characteristics listed above does not push your thinking upward to express a summary insight, and therefore cannot guide it forward to develop new thinking on this particular subject. Actually, after a good deal of rewriting, it turned out that what the author meant to say was:

> The objective of the new planning and control system is to focus each unit of the organization on improving profits, by
>
> ¶ Requiring annual profit plans from each unit
> ¶ Coordinating their contents at each reporting level
> ¶ Controlling managers specifically against them

Bear in mind that if, as in this case, you do not find a clear relationship between the ideas you have grouped together as "problems" or "reasons" or "conclusions," etc., that is always an indication that there is something wrong with the ideas in your grouping, and that further thinking is therefore required.

The planning and control list contained only four points, and thus was relatively easy to sort out. Most lists produced tend to be longer. In that case, having isolated where the similarity in your grouping of sentences lies, the next step is to look for closer links between the similarities.

Look for Closer Links

Here is a grouping of five complaints about the information coming from an information system, with similarity in the actions in each sentence:

1. Productivity figures for accounting, estimating, and surveying should be updated
2. Regular personnel turnover figures are now necessary for all types of employee
3. Competition information from tenders should be gathered so that the strength of competition in different markets can be monitored
4. The present information about market rates for salaries is not adequate
5. Division and project capital lockup figures are needed

It says the information:

1. Should be updated
2. Is now necessary
3. Should be gathered
4. Is not adequate
5. Is needed

You can see that the points clearly fall into two distinct groups:

- Those complaining that the information does not exist (2, 3, 5).
- Those complaining that the information exists but is not adequate (1, 4).

But these two points present us with another classification. Why these two sets of problems and no others? What is the same about them that made the author instantly recognize them as problems that should be grouped together? Possibly because these defects indicate a uselessness for planning purposes. In that case, the point the author would state at the top would be:

> The planning system as presently set up produces information that is useless for planning purposes (Why?)
>
> ¶ Either the information needed doesn't exist
>
> ¶ Or it exists but it's not adequate

Now, seeing the point you want to make at the top, you can apply the concept of order to the points below to determine whether there are any other defects with the information system he might have overlooked mentioning. A logical next point for the author to check into might be whether "It exists and it's adequate, but it's not presented properly."

The major value of making a proper summary statement is that it helps *you* to find out what you really think. It also tells the reader in advance what he is meant to think about the ideas, and thus prepares his mind to receive them more easily, with greater confidence in their validity. And of course if you have been collectively exhaustive, the reader is unlikely to take issue with your reasoning. Above all, proper summary statements make the document less boring to read.

This is boring:

> As you know, some of the results of our Information System (IS) Assessment indicated:
>
> 1. You require committed due dates from IS project managers so strategic business initiatives can proceed without delays
> 2. Inexperience is present at the project manager position
> 3. The IS culture allows target dates to be "slipped" rather than implementing creative alternatives to achieving the target dates
> 4. Inconsistent use of the Systems Development methodology, tools, and techniques is present
> 5. Project managers have not installed "mission critical" systems of this size or complexity
> 6. Project managers have limited, if any classroom or on-the-job project management training or practical experience
> 7. Estimates, timeframes and schedules for your "mission critical" projects (e.g., Group and Individual) are at a high level—the ability to achieve the timeframes appears risky and suspect
> 8. The current system development life cycle methodology does not support techniques for client/server development such as Rapid Application Development, Joint Application Development, and Prototyping

But now you know the process, it is easy to isolate the essential structural elements . . .

1. Need due dates
2. Inexperienced project managers
3. Danger of slipping dates
4. Inconsistent use of tools
5. Never done something this big
6. Limited experience
7. Afraid of slipping dates
8. Don't have tools to do the work

. . . and turn them into a clear statement of ideas that is interesting, whether you understand the subject or not.

> Our assessment of your Corporate Information Systems Division indicated some risk that your Project Managers may not be able to achieve the target dates (3, 7)
>
> - They have limited experience in doing this kind of work (2, 6)
> - They have never before installed systems of this size or complexity (5)
> - They lack skill in applying the methodology, tools, and techniques required to do the job (4, 8)

In these examples it has been easy to establish the point that the grouped ideas must be trying to make. Sometimes, however, the implication inherent in the similarities is harder to see, so that putting the insight into words requires making what's called

an inductive leap. The springboard for that leap is likely to be a visualization of the source of the relationship reflected in the grouping.

Make the Inductive Leap

Here is a list of the major points of a presentation given by a consultant to a client who wanted to know whether he should enter the automotive aftermarket (spark plugs, tires, etc.)

Our Conclusions

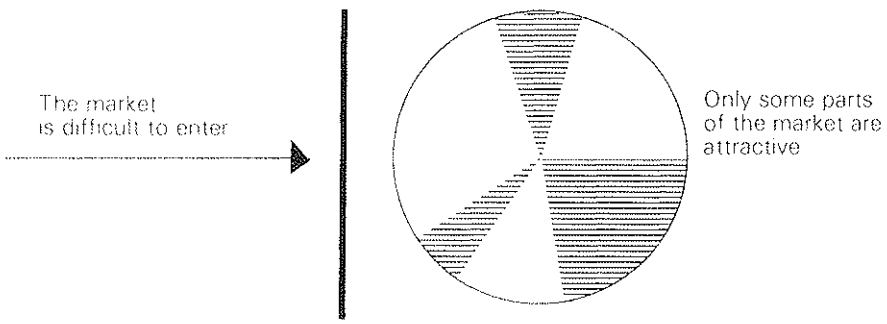
1. Market is large and growing at an attractive rate
2. Aftermarket is profitable
3. Key market characteristics indicate high barriers to entry
4. Overall trends are favorable, but uncertainties obscure some market segments' outlooks
5. Overall, the market appears attractive, but is highly fragmented.

Again the ideas fall into two groupings:

- Positive points: large, growing, attractive, profitable, favorable trends, attractive (1, 2, 4, 5)
- Negative points: high barriers to entry, uncertainties, fragmented (3, 4, 5)

We can summarize the positive points immediately. Clearly, if the market is large, growing, and profitable, it is attractive. And favorable trends also means it's attractive. Visualize the attractive market as a circle.

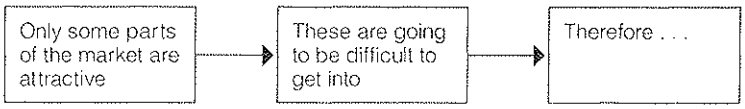
The negative points don't group so easily. Fragmented means that the circle must have some segments in it, but uncertainties obscure some of the segments' outlooks. This means some of the segments must look different from the others, as shown below. Finally, there are barriers to entry, which can be shown with a line stopping entry.



Now it is time to see if the two points relate inductively. What conclusions can we draw from this visualization?

- Only some parts of the market are attractive
- These are going to be difficult to get into

Do these two points have an inductive relationship? Is there anything the same about being attractive and hard to get into? No. So if they relate it can only be deductively:



Therefore what? The reasoning was never carried to its conclusion. Therefore forget it? Therefore you will have to buy your way in? Therefore hire us to work out a careful strategy? This example illustrates again the danger of settling for an intellectually blank assertion rather than pushing your thinking to its completion.

Sometimes you will be presented with groupings that look like situation ideas, but are really action ideas in disguise. Begin by treating them as if they were classed together because of their similarity, and then switch the form if you can visualize the effect that together they would achieve. For example, suppose you read:

There are four variables to be managed in the resource allocation process:

- Sequence and timing of activities
- Definition of specific people's tasks
- Definition of information needs (content and form)
- Decision making process

Why these four variables and no others? What is the same about them that made him group them together? If you try to state them more specifically, so as to find an order, you will see that the author is really talking about four steps, and probably meant to say something like this:

The major management task in the resource allocation process is to ensure early and substantial participation of the proper people (How?)

- Spell out the sequence and timing of project planning activities (1)
- Specify where decisions are needed (2)
- Identify who will participate in making them (4)
- Define the information they need to do so (3)

This is not to say that situation ideas cannot be in time order. Here, for example, is a list of points that are statements about a company's sales proposals, which can be sorted into a time-ordered grouping:

Our sales proposals can demonstrate a new image to our customers through improvements in the following areas:

1. More effective Opportunity Analysis to insure that we maximize the utilization of resources
2. Coordination of all proposals, including the establishment of a single quality process for proposal development, standards for content and packaging, and a system for continuous quality improvement
3. Maximize the reuse of proposal information
4. Share the knowledge and experience of those involved in the proposal process both within the company and the industry as a whole
5. Become more cost-effective in proposal preparation
6. Further reduce response time
7. Focus the proposal process on customer needs as a sales tool (not a mechanism for transfer of technical information)

If we follow our standard process (look for similarities, draw inferences) we get three ideas, justified by the order in which each activity happens.

Our proposals are not effective as a sales tool:

1. We don't present a compelling message (1, 4, 7)
2. We don't make it look outstanding (2)
3. We take too long in the process (3, 5, 6)

Before you start objecting to the difficulty of forcing your thinking upward every time, let me admit that you are not going to be enforcing this discipline absolutely rigidly throughout all your writing—not because it's not a useful thing to do, but because you don't always need that degree of precision, given a reader's automatic tendency to impose a gestalt where necessary. Thus, if you know your reasoning is valid, you can get away with a less precise summary point.

Our sales proposals can demonstrate a new image to our customers provided we:

1. Present a more compelling message
2. Make it look outstanding
3. Deliver it with great speed

The message to take away from this discussion is that you cannot simply group together a set of ideas and assume your reader will understand their significance. Every grouping implies an overall point that reflects the nature of the

relationship between the ideas in the grouping. You should first define that relationship for yourself, and then state it for the reader.

Always ask yourself of any grouping, "Why have I brought together these particular ideas and no others?" The answer will be:

- ¶ They all possess a characteristic in common, and are the only ideas linked in this way
  - In which case your summary point will be an insight gleaned from having contemplated the significance of the similarity.
- ¶ They are all of the actions that must be taken together to achieve a desired effect
  - In which case the summary point states the direct effect of taking the actions.

If you force yourself to justify each grouping of ideas in this way, the thinking you communicate to your reader will be totally clear, and will more likely than not convey insights that you did not know you had before you sat down to write.

THE MINTO PYRAMID PRINCIPLE

PART THREE
LOGIC IN PROBLEM SOLVING

INTRODUCTION TO PART 3 LOGIC IN PROBLEM SOLVING

You will find over time that the Situation-Complication-Question form of the introduction will become second nature to you, and you will be able to impose it automatically as you sit down to write a short document. And using the question/answer process, coupled with the disciplines for imposing order and finding summaries described in Chapters 6 and 7, you should be able relatively easily to work out the structure of your thinking.

In longer documents such as reports and presentations, however (which are usually written to give the solution to a problem), or in project plans or consulting proposals (which tell how you will go about solving the problem), the process is not quite that straightforward. There will likely have been a lengthy data gathering stage, the writing task may involve several authors and extend over a number of days (or weeks), and you can easily find yourself overwhelmed with all the facts, data, information, and ideas that need to be sorted and considered before you can determine the message you wish to communicate.

This section of the book is written specifically for people who write these kinds of problem-oriented documents—management consultants, strategic analysts, market researchers, etc. The material covered is necessarily lengthy and complex, reflecting the nature of the subject. But the approaches have been well and truly tested, and are in daily use by consultants and analysts worldwide. If this is your field and you need to define and analyze problems before communicating the solutions in writing, you will find it worth the effort to read on.

Problem-oriented documents generally spring from a desire to answer a variation on one of the three most common questions, depending on what is known in advance by the reader:

- What should we do? (if the solution is not known)
- Should we do it? (if a solution has been suggested)
- How should we do it? / How will you do it? (if the solution is known and accepted).

In those cases the introduction acts to define the nature of the problem that generated the question, after which the pyramid presents the "steps" or "reasons" (or sometimes the deductive argument) gleaned from having analyzed the problem and found a solution. But the thinking required to identify those steps or reasons begins well before you have any ideas whatever to communicate. Ideally you will follow a sequential process in which you

Define the problem → **Structure the analysis** → **Conduct the analysis/find the solution** → **Form the pyramid to communicate the ideas**

The secret to writing consulting reports efficiently is to make sure you (a) define the problem and (b) structure the gathering and analysis of your data so as to facilitate their translation into pyramid form. In other words, you want to organize your approach to the first two stages so that they lead easily through the third to the fourth—in effect to pre-structure your pyramid.

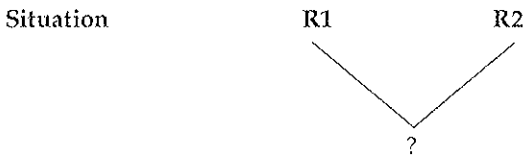
But defining the problem and structuring the analysis can be complex undertakings. The events that led up to the problem are often obscure, confused, or misstated. Vast amounts of data generally exist about all aspects of the problem, so that you are tempted to "go after everything" just to be sure. And many possible "solutions" to the problem can present themselves.

Fortunately, a number of analytical frameworks have been developed to help you minimize confusion and work efficiently.

- Chapter 8 recommends a framework for defining problems, useful first as a prelude to problem analysis and later as a template for determining the Situation-Complication-Question structure of the introduction.
- Chapter 9 describes other frameworks available to help you in thinking through and conducting the actual analysis of the problem, and in checking the validity of the ideas you generate as the solution.

8 DEFINING THE PROBLEM

When you decide that a problem exists, you are usually perceiving a gap between the results you get now from a certain line of endeavor and the results you would rather have had. You are essentially recognizing that a particular situation in the world yields a specific result, which I call the Undesired Result (R1).



The *problem* is that you do not like the result (e.g., Sales are declining), and you want some other result (e.g., Sales to be growing), which I call the Desired Result (R2). The *solution* then tells you how to get from R1 to R2.

Defining a problem in this way begins the process of Sequential Analysis,* a particularly efficient problem-solving technique that involves finding the answers to a series of questions in logical sequence:

1. Is there/is there likely to be a problem (or opportunity)?
2. Where does it lie?
3. Why does it exist
4. What could we do about it?
5. What should we do about it?

* Holland. B. Robert, *Sequential Analysis*, McKinsey & Company, London, 1972

The answers to the first two questions serve to define the problem, question 3 points you to finding its causes, and questions 4 and 5 deal with determining the best way to eliminate the problem (or to take advantage of the opportunity):

1. Is there/is there likely to be a problem (or opportunity)? 2. Where does it lie?	**Define the problem**
3. Why does it exist?	**Structure the analysis**
4. What could we do about it? 5. What should we do about it?	**Find the solution**

In communicating the results of your analysis, the answers to questions 1 and 2 become the introduction to your document, while the answers to the other questions lead to the points in the pyramid. In this chapter I will present a formal way to define the problem so that you can move easily from it to write the introduction to a proposal or a final report.

PROBLEM-DEFINITION FRAMEWORK

If, as stated previously, a problem represents a gap between what you have and what you want, that gap did not arise in a vacuum. It resulted from an existing situation and developed in response to a particular set of circumstances. These circumstances can be quite simple or they can involve a complex interaction of cause and effect. Either way, understanding the history of their development is essential both to pinpointing the nature of the gap and to grasping its significance.

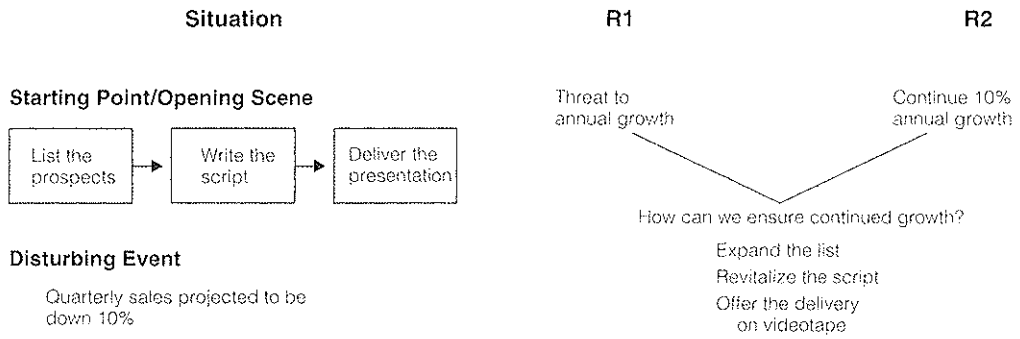
Laying out the Elements

Let me explain the elements of the framework using a deliberately simplistic example. Suppose you have a company that has for 30 years followed a tried-and-true method to sell a product that is in enormous demand, say industrial real estate. The salesmen simply make a list of their sales prospects, write a script of what they will say to the prospects, and then deliver the message.

The company has done phenomenally well over time, increasing its sales some 10% a year every year. This year, however, as it goes into the final quarter, indications are that sales instead of being up 10% will be down 10%. The news is naturally something of a shock, and the company wants to take action as quickly as possible to get sales back on track.

Think of the problem as emerging from an existing Situation (Exhibit 32). This Situation is made up of a Starting Point or Opening Scene that encompasses an existing structure or process (their standard selling approach). The process yields or is expected to yield a Desired Result (R2) of continued 10% annual growth. Something has happened or an action has been taken in the Situation (they calculated their projected sales) that led to the acknowledgement or revelation of a likely Undesired Result (R1), the threat that sales growth will be lower than expected.

Exhibit 32 *A problem emerges from an existing situation*



A gap now exists between what was delivered and what was expected. That gap is *the problem.* To solve the problem, one has to identify the causes of the gap and determine the steps required to close it. These causes will generally lie in the activities envisioned in the Opening Scene. Thus the Problem Definition Framework requires you to answer three questions:

- What's going on?
  (Situation [Starting Point/Opening Scene + Disturbing Event])
- What don't we like about it? (R1)
- What do we want instead? (R2)

Once these questions are answered, the problem is defined to the point where you can determine the Question generated by the problem and begin to look for the Solution. The Solution generally comes from changing what is going on in the structure or process identified as the original Starting Point/Opening Scene. In the case just described, if the sales are down, they are likely down because

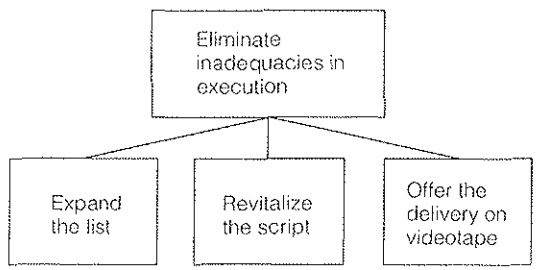
- The list is no longer valid, and/or
- The script is not punchy enough, and/or
- The delivery is ineffective.

You are now in a position to structure the analysis of the problem. To that end, you will develop diagnostic frameworks and logic trees that enable you to do a complete

breakdown of each area to identify the causes of sales being down. The steps in your solution will derive from these frameworks, and would likely cover fixing the list and/or the script and/or the delivery. (Chapter 9, *Structuring the Analysis of the Problem*, explains diagnostic frameworks for problem analysis and how to develop them.)

Converting to an Introduction

Best of all, once you are ready to put the solution in writing, you can easily convert the problem definition to an introduction. You simply read from left to right and down, with the last thing known by the reader always serving as the Complication that triggers the Question. Thus, in this case:

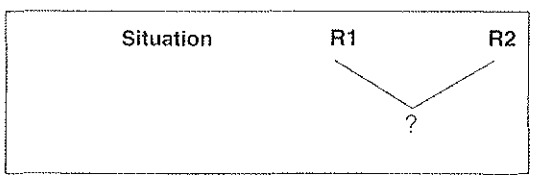


S = Have been using tried and true approach to sell this product, for 30 years has given us 10% increase in sales each year. (Starting Point)

C = Quarterly projections show sales down 10% instead of up 10%, augurs ill for our being able to make year-end figures. (Disturbing Event, R1, R2)

Q = How can we ensure continued growth?

This was, of course, a highly simplified example, in which the question was simply "How do we get from R1 to R2?" worked out in this form:

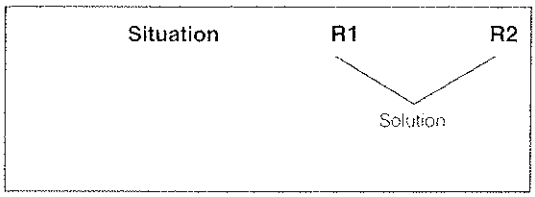


S = We have a process we like (Situation)

C = It isn't giving us what we want (R1, R2)

Q = What should we do?

Most problems have a more complex history. A company could, for example, have identified a problem and already come up with a solution. In that case, the question would be either "Is it the right solution?" or "How do we implement the solution?" And the existence of the solution becomes the Complication that triggers the question.

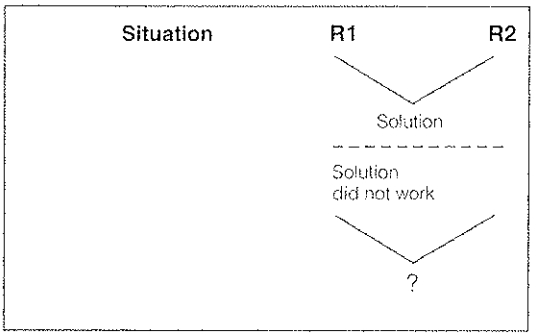


S = We had a problem (Situation, R1, R2)

C = We came up with a solution (Solution)

Q = Is it the right solution? or How do we implement the solution?

Or a company could have had a problem, come up with a solution, and found the solution is not working. Then the question is again "What should we do?"



S = We had a problem and developed a solution (Situation, R1, R2, Solution)

C = The solution is not working (R1-b)

Q = What should we do?

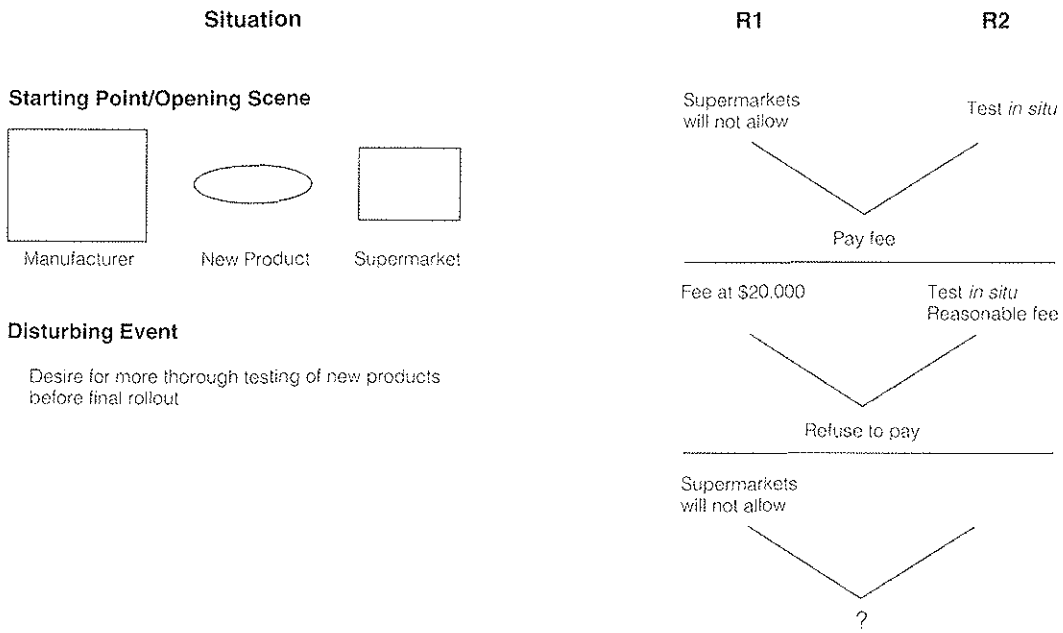
Or you could even have a triple-layer problem, in which the second Solution also did not work. Suppose, for example, you are a large packaged foods manufacturer, back in the days when supermarkets were a fairly new institution. Despite extensive new-product testing, you feel more comfortable testing about-to-be-released products on the supermarket shelves for a week or so before starting the full-scale launch.

You have gone to the supermarkets and announced your intention, but they have balked at allowing you to come in and disrupt their orderly existence. However, you have offered to pay a modest fee for the privilege, and they have accepted.

Time passes, supermarkets band into chains, and the fee, as fees have a habit of doing, increases to $20,000 a week, which you think is an outrageous amount of money. A committee is convened to look into the problem but, as committees also have a habit of doing, can agree on no solution other than to refuse to pay. Alas, the supermarkets also refuse to allow week-long test marketing of products on their shelves.

We now have a problem that would be structured to look like Exhibit 33.

Exhibit 33 *Problems can extend to triple layers*



This is indeed a complex history. But, because you have been able to lay it out and look at it in this orderly way, you can quite easily describe it in a few sentences in the introduction to, say, a speech to members of your industry. Again, the technique is to read from left to right and down, making the last thing known by the reader the Complication.

Situation As you know, in order to overcome the supermarkets' reluctance to permitting week-long testing of new products on their shelves, we in the industry have over the last several years been paying them a fee. This fee has increased every year, so that it now stands at $20,000—somewhat high for a week's use of shelf space. In an effort to make the supermarkets see reason, we have refused to pay the fee. (Situation, R1-a, R2-a, Solution-a, R1-b, R2-b, Solution-b)

Complication Unfortunately, they have also refused to let us test-market our products. (R1-c)

Question The question we want to deal with today is how should we respond?

As I said earlier, you use the Problem Definition Framework as the first step in the problem-solving process, as well as the first step in building a pyramid of the ideas that will communicate the solution. You will also find the framework invaluable as an aid to pinpointing and correcting problems in documents passed on to you for review. In either case, the process you want to follow is:

- Lay out the basic parts of the problem as shown in the previous exhibits.
- Identify where you are in terms of the solution. (Has a solution already been suggested or accepted?)
- Determine the appropriate question.
- Check that the introduction reflects the problem definition.
- Check that the pyramid answers the question.

Let me take you through this general process, finishing with a real-life example. Then in Chapter 9 I will show you how to expand on the problem definition to structure the analysis of the problem and generate possible solutions.

LAY OUT THE PROBLEM

As we saw in the previous section, we need to specify four elements before we can say we have defined a problem to the point where we can look for a solution:

- The Starting Point/Opening Scene
- The Disturbing Event
- R1 (Undesired Result)
- R2 (Desired Result)

These elements together tell a rather dramatic story of how the problem unfolded, and you can usefully think of them in dramatic terms.

The Starting Point/Opening Scene

Imagine yourself seated quietly in a darkened theatre. The curtain parts and immediately you see on stage a set depicting a specific place at a particular moment in time. That is the Starting Point or Opening Scene. Then something happens that launches the action of the drama. That is the Disturbing Event.

The same process applies in defining a problem. Only here the curtain opens and

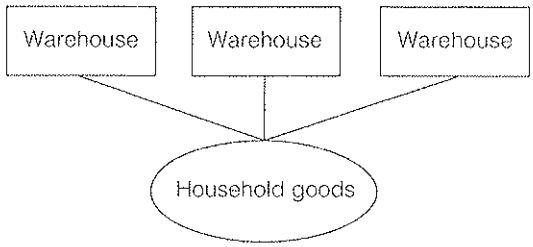
you see, at a specific point in space and time, the area of your own or your client's company or industry within which the problem originated. It will likely consist of a structure or a process that you can easily visualize.

Typical Opening Scene structures	Typical Opening Scene processes
• Organization charts • Computer configurations • Plant/office locations • Geographical markets	• Sales or marketing activities • Information systems • Administrative processes • Distribution systems • Manufacturing processes

You want to sketch the layout of what you see that constitutes the area you are discussing, assuming about the level of general knowledge of the normal reader of *Fortune* or *Business Week*. Or alternatively, pretend you are beginning to tell a friend the story of the problem. What would he or she have to be able to "see" to understand what you are talking about.

> "Once upon a time there was a company that distributed household goods around the country from three warehouses..."

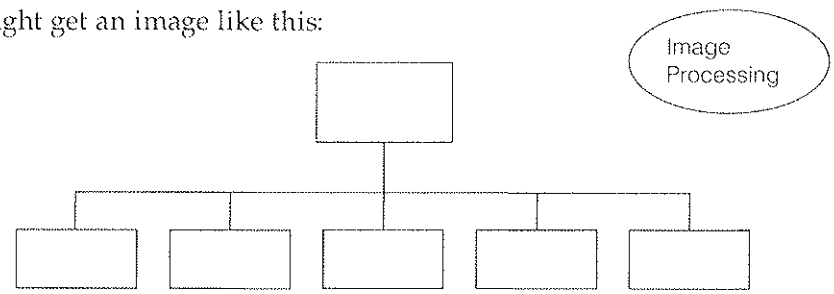
He would naturally get an image of the three warehouses set up to distribute goods.



Or you might say:

> "Our company consists of a number of independently run businesses, each of which engages in activities in which the new technology of image processing may be appropriate."

And he might get an image like this:



At the Opening Scene stage, you want to keep your visualization simple and your description short. You can expand the prose when you write the actual words of the introduction.

The Disturbing Event

Interest in the structure or process arises because of something that happens to disturb the way it functions. The Disturbing Event is what happens—or what could happen or would be likely to happen in the near or far future—to threaten the relatively stable situation described in the Opening Scene, and thus to trigger the undesired result (R1). In the previous example, the emergence of the new technology is the Disturbing Event.

A Disturbing Event can be:

External—a change initiated elsewhere in the environment within which the structure/process takes place, e.g.

Emergence of a new competitor
Conversion to a new technology
Shift in government or customer policy

Internal—a change initiated by the company, e.g.

Added a business process
Installed a new computer system
Expanded into a new market
Redirected the product line

Recently Recognized—a recognition or evidence of an obvious or likely need for change, e.g.

Lagging performance in a product/process
Sub-par operating results
Market research that implies a possible shift in customer attitude.

Sometimes, especially in writing a consulting proposal, you may not have been given enough information to identify specifically what it was that generated the recognition that a problem exists. But you should be able to identify what it is the reader is unhappy with in his structure or process. In that case do not trouble yourself with trying to manufacture a Disturbing Event. Simply move directly to the R1.

R1 (Undesired Result)

The R1 is the problem that your reader is trying to solve or is likely to face, or the opportunity he could embrace. It is usually brought to the surface by the Disturbing Event (the source of which was external, internal, or recently recognized). In consulting, the undesired result is typically the stated trigger for a consulting engagement, although the underlying causes of the R1 may in some cases not be apparent to the client.

It may be that the Disturbing Event revealed the existence of a hitherto unrecognized or unavailable opportunity. More likely, however, is that it will have:

¶ Adversely affected the company's processes or structures

- ¶ Disrupted the performance of a particular area
- ¶ Triggered (or should have triggered) a rethinking of the business, its products, or its processes
- ¶ Challenged (or should have challenged) basic assumptions about customers, markets, competition, core competencies, processes or technology.

There may also be more than one R1 resulting from this disturbance. You want to state R1 as briefly as possible in your diagram. For example, it may be that the company is now unable to serve the market or is losing its market share. It may see its sales decreasing, its profit margins declining, or its financial performance eroding. Or a forecast market opportunity may not be realizable, etc.

R2 (Desired Result)

The R2 is what the reader wants his structure or process to produce in place of the R1. (Or if the R1 is an opportunity, he wants to be able to take advantage of the opportunity.) You want to state the R2 as specifically and quantifiably as you can, so that you will be able to tell when you have achieved it. Without an end-product description of the Desired Result, you cannot easily choose between the various possible Solutions you are likely to generate in the course of your thinking.

Try to state your R2 in end-product terms that either have a specific number or indicate a specific end state:

- ¶ Meet year-end growth goals
- ¶ Reduce time to market by 1/3
- ¶ Permit supermarket testing at reasonable cost
- ¶ Revise the system to function properly
- ¶ Have sufficient capacity to cope with projected demand.

It is possible that you will not be able to state the R2 as a specific end product, or that you may not be able to state it at all. In that case, simply write down in the R2 section the general state you want to find yourself in when the problem is solved. Then the first step in your problem solving should be to determine the specific R2.

What you are trying to do in laying out the parts of the problem is to erect a rough, but recognizable, scaffolding that will allow you to identify gaps in your understanding, and around which you can wrap the words of your introduction.

As you will see when we get to Chapter 9, your definitions of the Opening Scene, the Disturbing Event, the R1 and the R2 may very well change during the problem

solving process. Once you begin gathering data, for example, you may find yourself getting a better fix on the extent of external changes, and thus can refine and restate the essence of the R1 and R2. But always the relationship between the parts of the framework will prevail.

LOOK FOR THE QUESTION

Once you have the basic parts of the problem laid out, you are ready to look for the reader's question. This question will depend on how far along in the problem the reader has progressed before you began to analyze it. Does he simply want to know how to get from R1 to R2? Or has he already decided how to do that, in which case he will of course have a different question.

A big error some writers make is in not specifying to themselves whether some action has already been taken by the reader to solve the problem. Recognizing when action has been taken—and how that affects the question a document is meant to answer—greatly simplifies writing the introduction and structuring the subsequent reasoning.

Using the problem definition as a guide, we can see that readers will generally face one of seven problem situations, depending on where they stand in terms of seeking a solution:

Most common circumstances

1. They do not know how to get from R1 to R2.
2. They think they know how to get from R1 to R2, but they are not certain they are right.
3. They know for sure how to get from R1 to R2, but they do not know how to implement the solution.

Variations on the most common circumstances

4. They thought they knew how to get from R1 to R2 and implemented it, but that solution turned out not to work for some reason.
5. They have identified several possible solutions, but don't know which to pick.

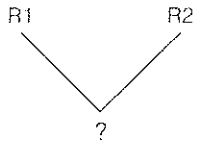
Also possible but not common

6. They know R1 but cannot articulate R2 specifically enough to permit looking for a solution.
7. They know R2 but are not sure whether they are at R1 (typical benchmarking study).

Exhibit 34 shows how the elements of the problem definition would map to the introduction in each of the seven cases.

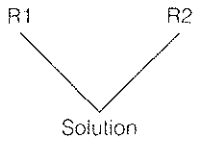
Exhibit 34 *Identify where the reader stands in terms of seeking a solution*

1. Situation



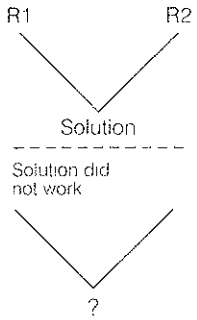
S = Situation
C = R1, R2
Q = How do we get from R1 to R2?

2. Situation
3.



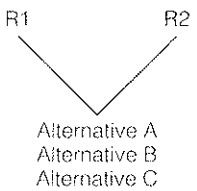
S = Situation R1, R2
C = Solution
Q = Is it the right solution? *or*
How do we implement
the solution?

4. Situation



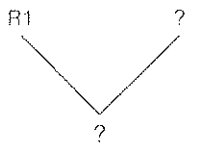
S = Situation R1, R2 Solution
C = Solution did not work
Q = What should we do?

5. Situation



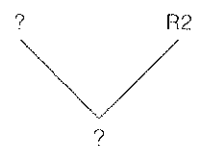
S = Situation, R1, R2
C = We have alternative ways to
solve the problem
Q = Which is the best alternative?

6. Situation



S = Situation, R1
C = Know that we need to change,
but not sure what we should be
aiming for or how to get there
Q = What should be our objectives
and strategy?

7. Situation



S = Situation, R2
C = Not sure whether we are at R1
Q = Do we have a problem, and if
so how should we respond?

MOVE TO THE INTRODUCTION

As you have seen, the Problem Definition Framework for the most part lays out the problem elements in the order in which they can most easily be used in the introduction. You simply move from left to right and down. The last thing known by the reader is always the Complication.

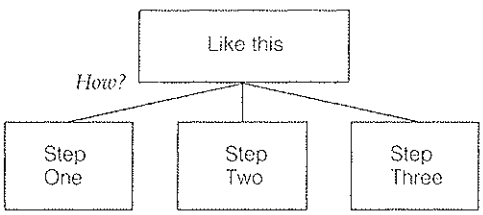
Following are examples illustrating the introduction and pyramid for each of the seven standard questions shown in Exhibit 34. These examples are somewhat abstract, in order to emphasize the bare structure, but you can read the full content of each introduction in Appendix B, *Examples of Introductory Structures.*

What should we do? (1)

S = Have X approach to selling to markets now

C = Expect much higher growth, face other problems, afraid X approach will not continue to work

Q = How should we change?



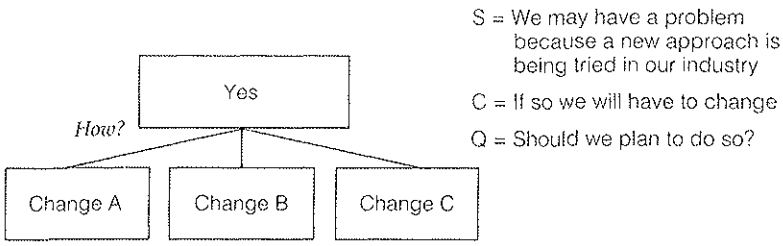
This structure is the simplest of all to analyze and write, since the Situation always describes what is going on now, and the Complication is always that the reader is at R1 and wishes to be at R2. This is also the structure used to tell someone how to change or upgrade a system that is presently in operation. In that case, you would have:

Situation	Here's how the system works today
Complication	It does not do what it is meant to do
Question	How do we make it do what it is meant to do?

The plural noun for the Key Line here would be "changes." It differs slightly from the structure you would use if you were telling someone how to do something new, where the plural noun would be "steps."

Situation	Here's the activity we are trying to perform
Complication	We are not able to perform it
Question	How do we create the capability to perform it?

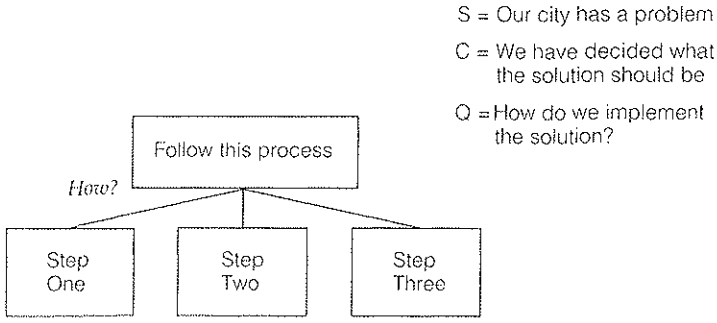
Should we do what we are thinking of doing? (2)



This general structure has a couple of interesting variations.

Situation	We have a situation/problem
Complication	We plan an action
Question	Is it the right action?
Situation	We are planning to take X action
Complication	We don't want to do X unless Y is the case
Question	Is Y the case?

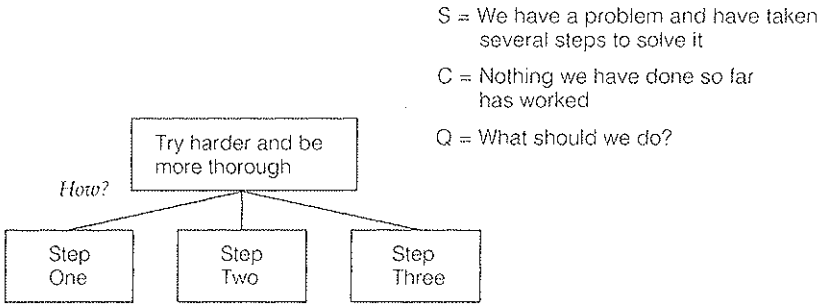
How should we do what we want to do? (3)



This structure is also used if you are trying to explain to someone how something was done:

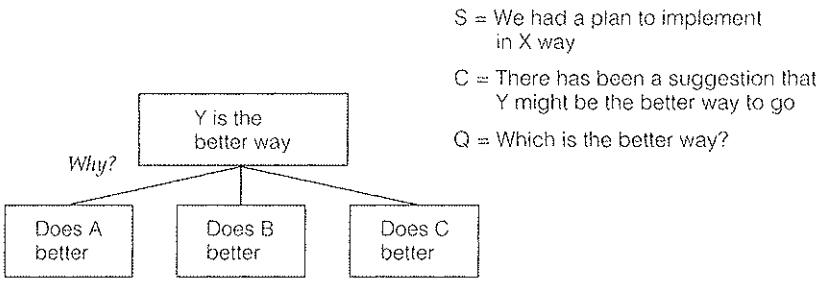
Situation	We had a problem
Complication	We solved it by doing X
Question	How did you do X?
Situation	We have/had an objective
Complication	We are installing a system/process to accomplish it
Question	How does it work?

Our solution hasn't worked, what should we do? (4)

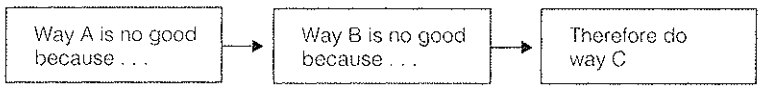


You can see that this structure is simply an extension of the first one, in that the question is the same, What should we do? The only difference is that the problem can have a double or triple-layer past, which needs to be traced before you get to the appropriate question.

Which alternative should we choose? (5)



Alternatives always go in the Complication, because you ordinarily should not bring them up unless they are known in advance by the reader. That is, he will have identified them himself as possible courses of action that he wants you to weigh and analyze. What you specifically want to avoid is bringing up alternatives simply to knock them down. For example, "We have three ways we can solve this problem," with a Key Line that reads:



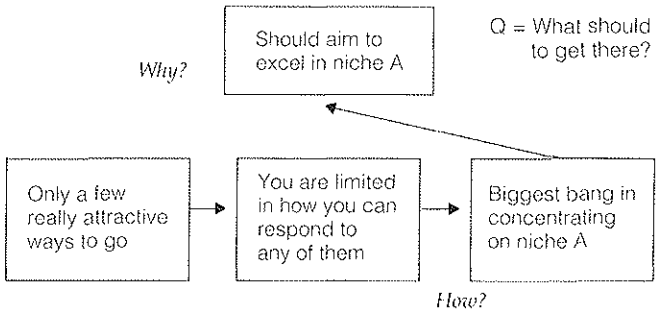
The reason for doing C is not that A and B are no good; the reason for doing C is that it solves the problem. (See Appendix B for a fuller discussion of generating and discussing alternatives.)

What should our strategy be? (6)

S = Operating as small player in big market

C = Don't know the full potential we could achieve, but know that we are nowhere near it.

Q = What should our strategy be to get there?



Sometimes a client can be presented with a problem or an opportunity that he recognizes requires action on his part, but the situation is so new or his knowledge so sparse that he does not know how to go about either setting clearly defined objectives or working out the steps for achieving them. He might, for example, be in an industry whose technology and markets are changing rapidly, he recognizes the turmoil as an opportunity to move out of stagnant areas and into growing ones, but he simply doesn't know what they are likely to be.

In this case a consultant is called in to analyze the industry and identify the key factors for success in it, determine where the client is strong in relation to the key factors, determine how effectively and profitably he would be able to compete given those strengths, and then work out what he thinks the client's wisest strategy would be.

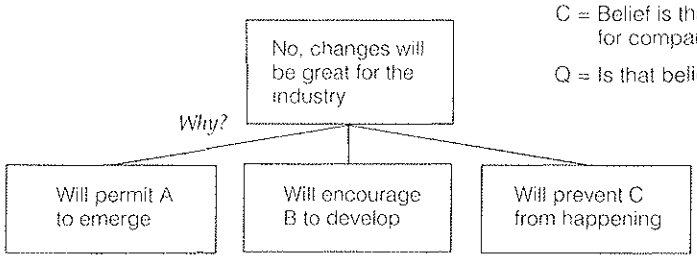
The top point of the document is then a statement of that strategy, with the Key Line either delineating the steps to achieve it or, as shown above, explaining the strategy with a deductive argument, where the steps go under the final box.

Do we have a problem? (7)

S = Major changes taking place with advent of new market groupings

C = Belief is that these changes augur ill for companies in this industry

Q = Is that belief justified?



This particular document reflects concerns about a changing industry. Most typically the structure is used when a client wants to "benchmark" himself against

his competitors or against companies in other industries that perform the same activities he does.

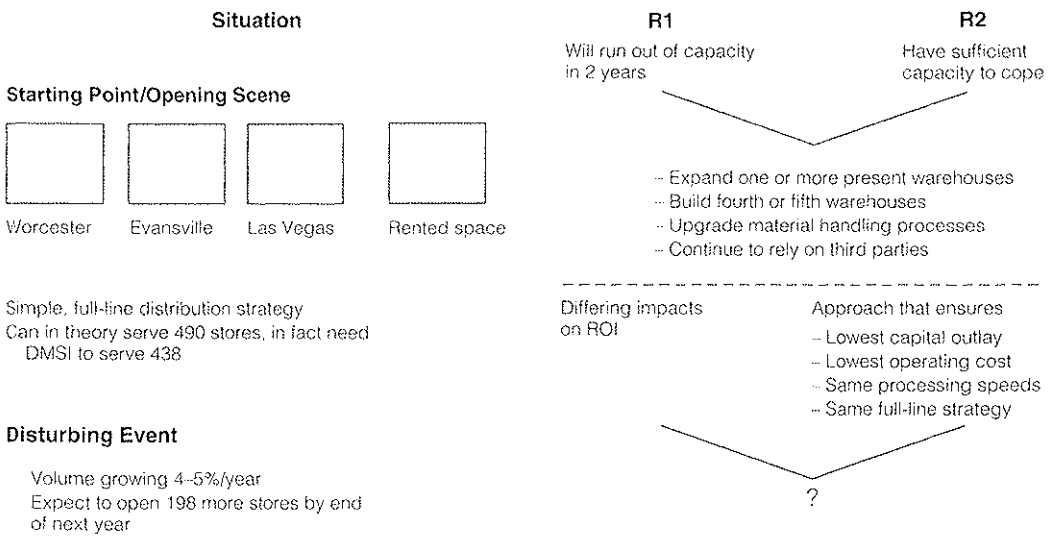
REAL-LIFE EXAMPLE

To give you a sense of how easily the elements of the problem definition translate into the parts of the introduction, here is a real-life example going from the problem definition to the final pyramid. It concerns a retail distributor of household goods. Here are the problem elements:

The company had three distribution centers, located in Worcester, Evansville, and Las Vegas, plus rented space from a company called DMSI. Capacity of the three warehouses was meant to serve 490 stores, but in fact the four centers were sometimes hard pressed to serve only the present 438 stores. Given an annual growth rate of 4–5%, plus plans to open 198 new stores by the end of the year, the company expected to run out of capacity in 2 years.

The company had identified a variety of actions it could take to provide the necessary capacity: expand one or more of the present warehouses, build a fourth or fifth

Exhibit 35 *Structure the problem*



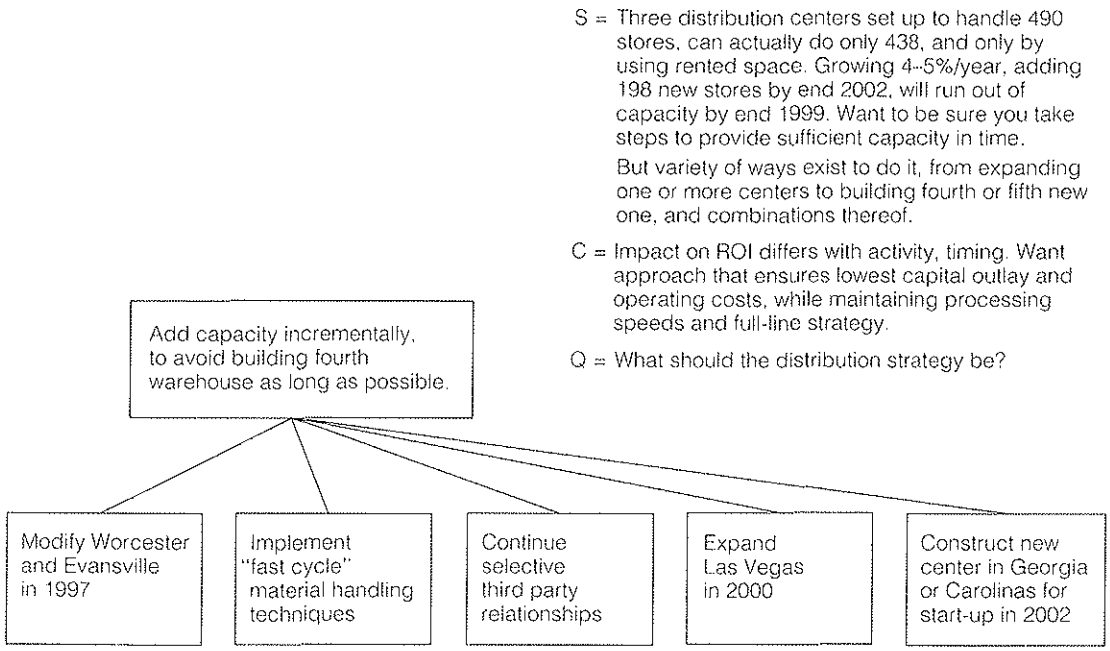
new warehouse, upgrade material handling processes, or continue to rely on third parties. Each action, however, had a different impact on ROI. The company wanted to select a strategy that would ensure the lowest capital outlay and operating costs, while still allowing it to operate with the same processing speeds and using the same full-line strategy.

The problem can be laid out as shown in Exhibit 35 on page 137. From it, you can see that you will want an introductory structure that is a variation on number 5 in Exhibit 34, page 132.

S = We have a problem
C = We have alternative ways to solve it
Q = Which?

You would then get the introduction and pyramid shown in Exhibit 36.

Exhibit 36 *Move from the problem to the pyramid*

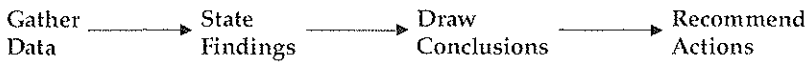


The Problem Definition Framework is a difficult concept to take in and appreciate at first reading. But it is nevertheless an extremely useful tool to have available whenever you need to explain a problem, whether orally or in writing. And you have just seen that it serves as a wonderful guide to developing the introduction to a document meant to recommend a solution to the problem.

Between the definition of the problem and the discovery of the solution, of course, comes the actual problem analysis—the identification of the causes of the problem and the assessment of possible courses of action to eliminate it. The value of the Problem Definition Framework here is that it guides you to work most efficiently in identifying and structuring the analyses required to develop an effective solution, as you will see in Chapter 9.

9 STRUCTURING THE ANALYSIS OF THE PROBLEM

Problem analysis generally proceeds in a standard way:



But to generate the conclusions and actions *most efficiently,* the analyst must deliberately structure his initial fact-gathering effort so that it will yield logically coherent findings. That is not the general practice. More likely is for people to go out and gather whatever data are available in an area, and postpone any real thought until they have the facts and figures all in one place.

One can do that, of course, but invariably it makes for extra work. A better approach is to generate diagnostic frameworks and logic trees to guide your analysis and direct your thinking. Not only will your problem solving be more efficient, structuring the results into a pyramid will be a much simpler task.

Since the general habit is so often to go after the data first, let me trace the reason for the prevalence of this approach and then explain the alternative.

STARTING WITH THE DATA

Starting with the data has a respectable history, dating back to the early days of consulting (1950s and 1960s). The profession was relatively new then, and consulting firms had not yet assembled extensive knowledge about industries and companies. Thus, the standard approach, regardless of the client's problem, was to begin a consulting engagement with a full company/industry analysis:

1. Identify the key factors for success in the industry, looking at
   - Market characteristics
   - Price-cost-investment characteristics
   - Technological demands
   - Industry structure and profitability
2. Assess the client's strengths and weaknesses, based on
   - Sales and market position
   - Technological position
   - Economic structure
   - Financial and cost results
3. Compare the client's performance against the key factors for success
4. Develop specific recommendations to capitalize on opportunities and solve problems.

The result was an overwhelming number of facts, from which it was difficult to draw meaningful conclusions. Indeed, a major consulting firm once estimated that fully 60% of its fact-finding and analysis effort was wasted. Consultants produced too many "interesting" facts and exhibits, only marginally connected with what turned out to be the client's real problem. Often, much of the information was incomplete, so that in many cases there were little or no data to support major recommendations. This meant consultants were forced to find additional data at the very last minute, a process both costly and ulcer-inducing.

Even with complete data, organizing the thinking into a clear presentation of ideas for the final report required massive effort. The initial approach was to group the facts they'd gathered under headings like Operations, Marketing, Growth Projections, Issues, etc. But we know from Chapter 7, *Summarizing Grouped Ideas*, how difficult it is to draw clear conclusions from groupings like that.

In an effort to impose *some* structure for the reader, most consulting firms resorted to presenting the information in the order in which they had gathered it, organizing around sections labeled Findings, Conclusions, and Recommendations. But these headings are no more helpful as a means to force the writer's thinking than are random topics. Either way, consultants spent vast amounts of time on the writing

effort, and ended up with lengthy, not very interesting documents that only poorly reflected the insights inherent in their work.

Given both the increasing cost of the effort and the unsatisfactory results, firms began looking into the problem. Eventually they determined that what makes sense (and what the better consulting firms now do) is to structure the analysis of the problem before beginning to gather any data. To an extent they are replicating the classic scientific method, in which you:

- Generate alternative hypotheses
- Devise a crucial experiment (or several of them) with alternative possible outcomes, each of which will as nearly as possible exclude one or more of the hypotheses
- Carry out the experiment so as to get a clean result
- Plan remedial action accordingly.

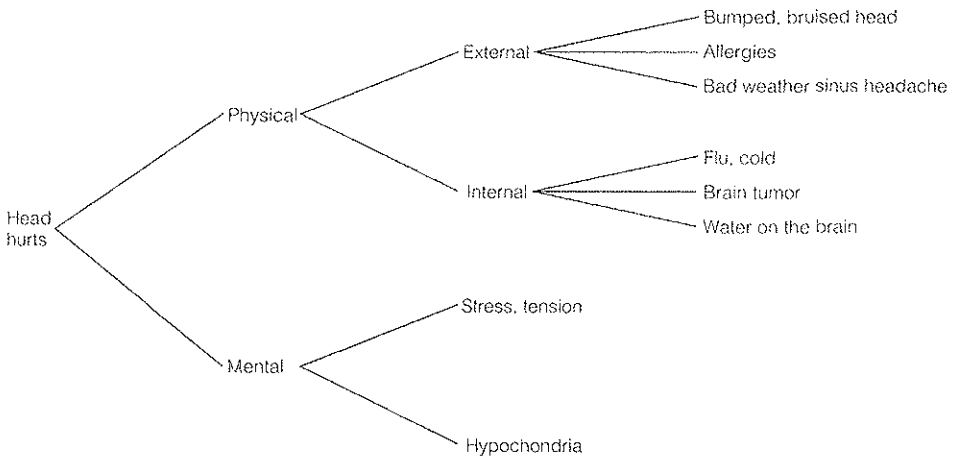
In other words, they force themselves to think up the likely possible reasons to explain why the problem exists (a technique known as Abduction, and discussed in Appendix A), and focus their data-gathering efforts on proving these reasons right or wrong. Confident that their conclusions about the causes of the problem are sound, they are then in a good position to be able to recommend creative solutions for eliminating them.

"Ah," you say, "but how do I come up with the 'likely possible reasons.' I can't just pull them out of the air." No, you must get them by looking critically at the *structure* of the area within which the problem occurred—the Opening Scene or Starting Point of the Problem-Definition framework. To get at this structure in depth, you need to employ an appropriate diagnostic framework.

A number of diagnostic frameworks are available to aid analysis, as well as a number of nondiagnostic logic trees to help generate recommendations. Very often the difference between these two aids to analysis is not noted, and they are lumped together under the heading of "analytical techniques" or "Issue Analysis." It is useful, however, to note the difference so that you can use the right technique in the right place.

DEVISING DIAGNOSTIC FRAMEWORKS

You use diagnostic frameworks to help you visualize what's going on in the area within which the client's problem occurred. This visualization in turn reveals the elements or activities on which your analysis should focus. To take a very simple example,* let's say your head hurts, you don't know why, and so you can't decide how to treat it. Step one would be to try to visualize the possible causes of the problem.



If your head hurts, a MECE classification reveals that it can be caused either by something physical or by something mental. If the cause is physical, the subcauses can have been either external or internal. If external, you may have bumped your head, or have allergies, or be responding to the weather, etc.

With this layout, you can assess the possible causes in the order in which they are easiest to eliminate. In other words, you are not going to set up an appointment to test for a brain tumor if it turns out you have a sinus headache.

We know from Chapter 6, *Imposing Logical Order,* that there are only three possible ways to structure anything: divide, trace cause and effect, or classify. You use one or more of these techniques in developing a diagnostic framework to get at the likely causes of a problem.

Showing Physical Structure

The physical areas of a business or industry have a clear structure—that is, they can be thought of as containing units organized into systems to perform a particular function. If you draw a picture of the system as it is or should be functioning, that picture will guide you to determining the questions you need to answer, yes or no, to identify the causes of the problem under analysis.

* From an internal presentation at Andersen Consulting.

Exhibit 37 *Show the physical structure of the operation*

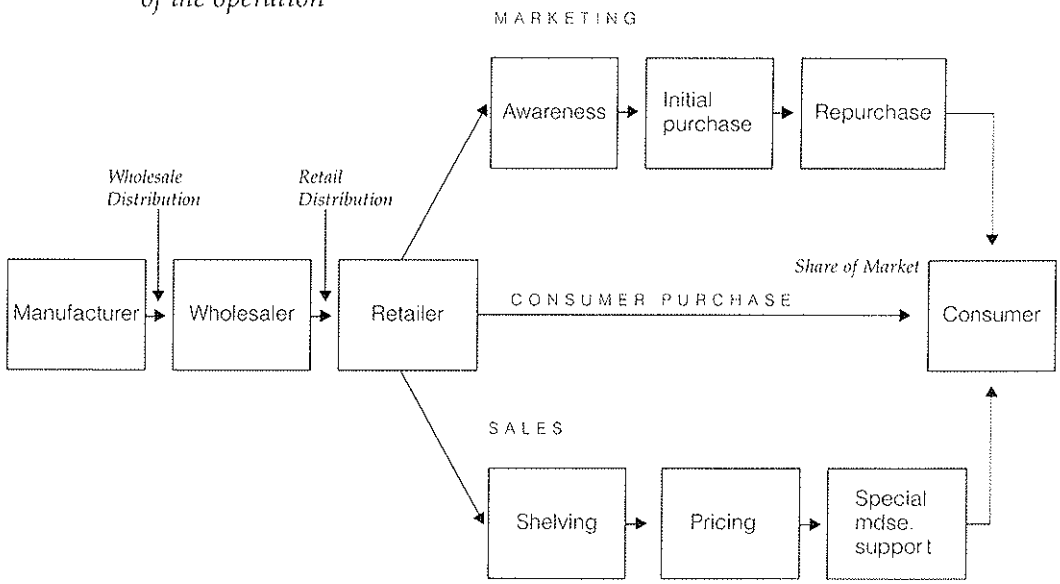
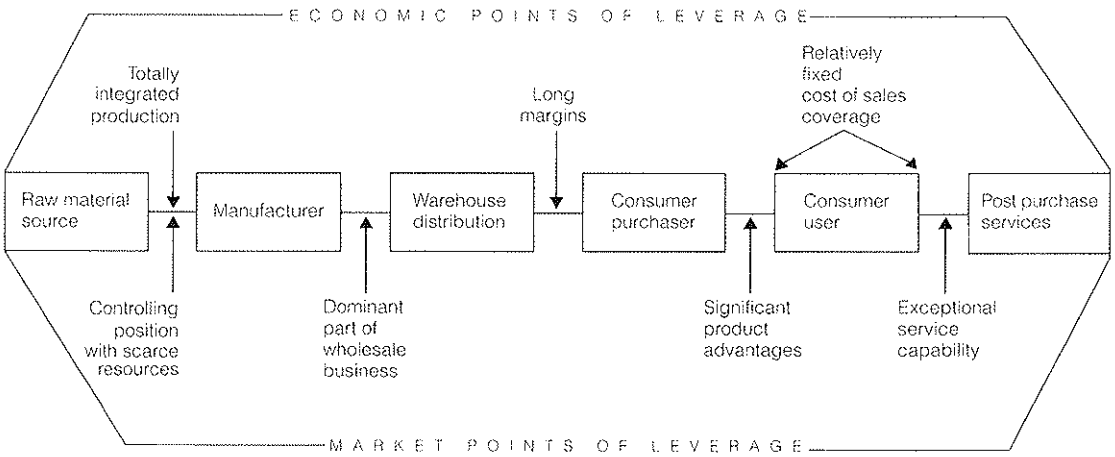


Exhibit 37, for example, shows the elements of sales and marketing available to the retailer to influence the consumer to buy. Thus, one of the things you would need to determine would be whether share of market is down (R1) because they don't make the customer sufficiently aware, because they don't convince him to buy, etc.

Another typical analysis at the beginning of a study is to try to understand the business process and key trends in an industry, as a basis for identifying danger areas. Here, you segment the industry (Exhibit 38) and determine volume and competitive structure for each segment. You can also attempt to determine where value is added, how costs behave, where profits are made, where profits are sensitive, and where assets are committed. Then you can look for points of leverage, and from those gather data to determine where the business is vulnerable.

Exhibit 38 *Show the structure of the industry*

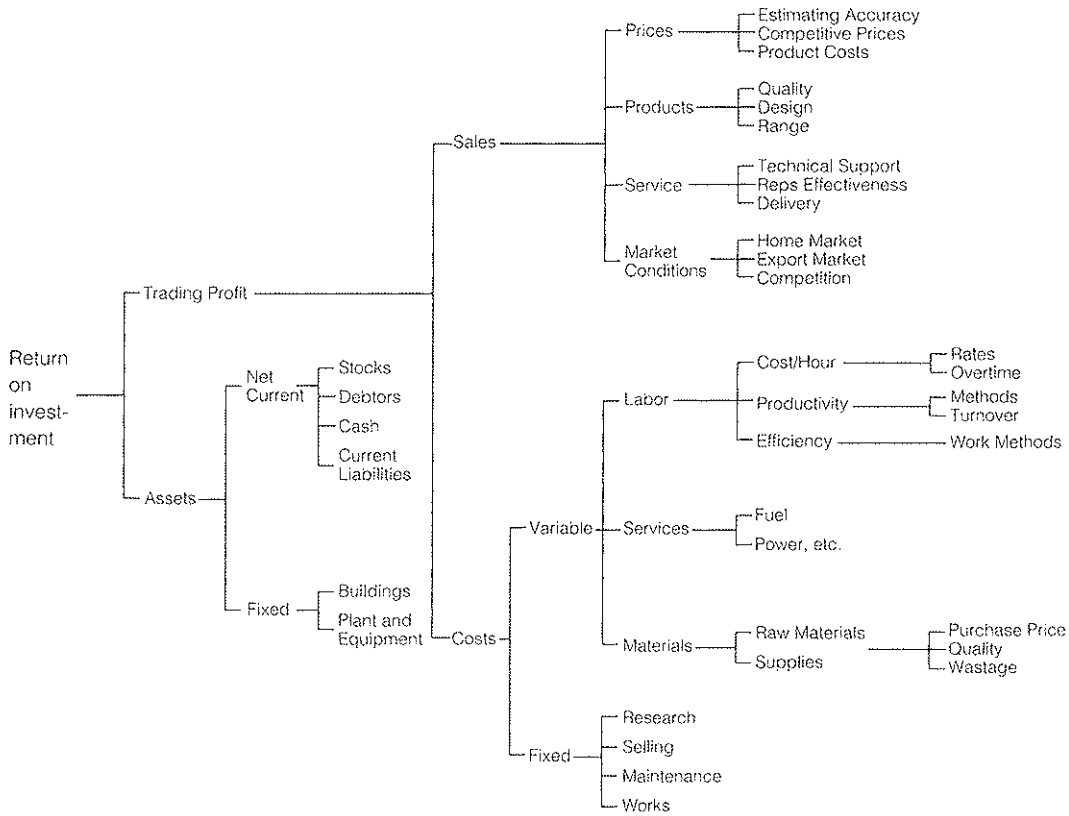


Tracing Cause and Effect

The second way to diagnose a problem is to trace the cause-effect elements, activities, or tasks that go to make up a particular end result. You can do this by showing levels of financial elements, tasks, or activities.

1. Financial Structure. You would use this approach if you wanted to show the financial structure of a company, say to identify the reasons for the R1 low return on investment (Exhibit 39).

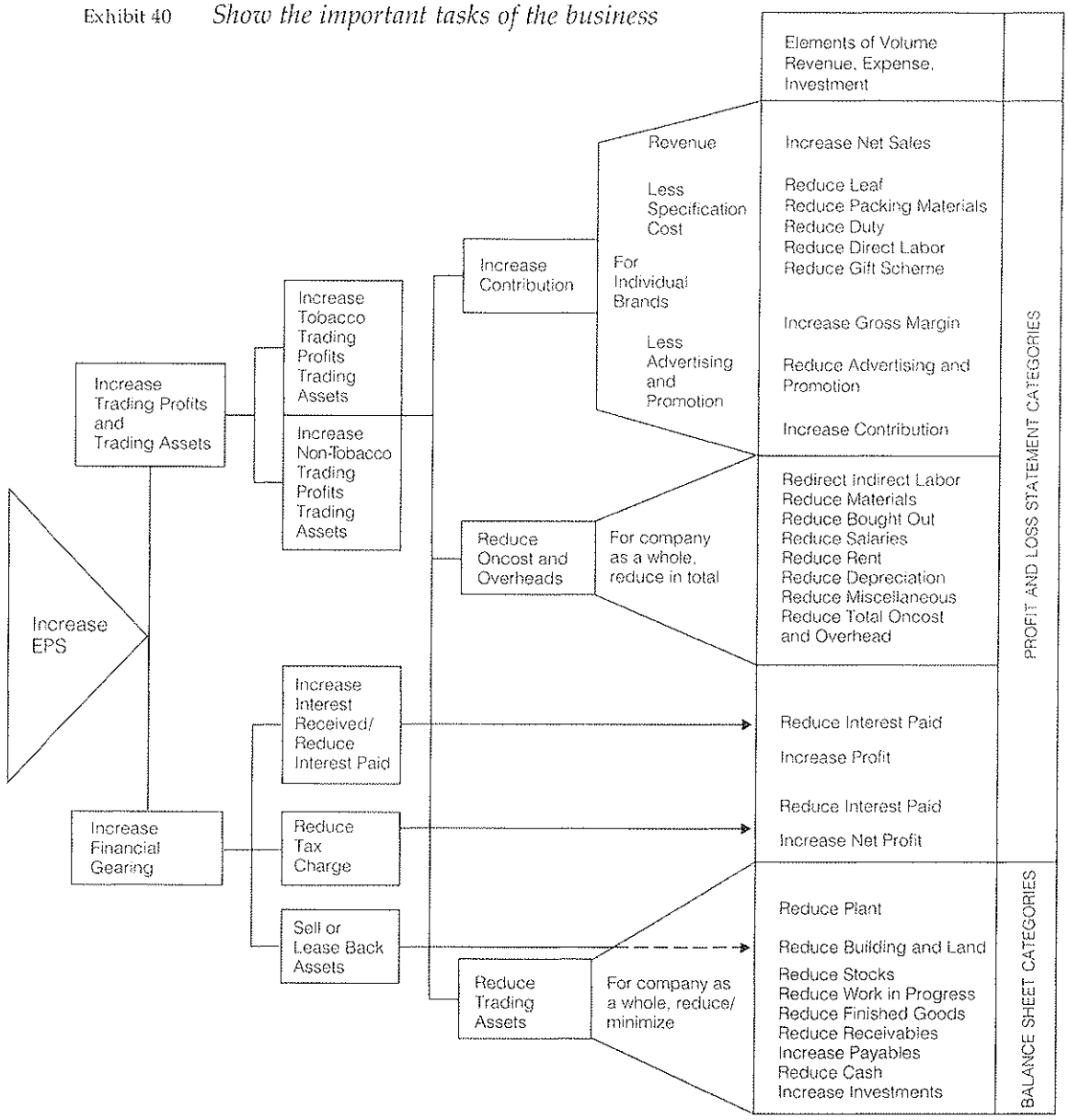
Exhibit 39 *Show the financial structure of the company*



Putting numbers on the chart, you would be able to judge very quickly whether the problem stems from the fact that Sales are low compared to last year, or Costs are high, or both. Accordingly, you would break down each element to show its key influences, and then identify the components of each influence (e.g., for Sales, product volume is dictated by the quality of the product, the design, and the range offered). Once the structure is complete, you would seek to determine, "Is the problem in the product volume? Is it in the pricing?" etc, and think through the data you would need to answer each question yes or no.

2. Task Structure. A deeper, more explicit approach is to make the tree show the important tasks of the business that it must organize itself to perform (Exhibit 40). To do so you begin with EPS (earnings per share) and divide the tree in terms of the company's financial structure, stating each element as a discrete managerial task. Then you impose the Profit and Loss Account and the Balance Sheet on this structure, again stating each item as a task. This approach has the great advantage of identifying the kind of action required should the problem be found at this point.

Exhibit 40 *Show the important tasks of the business*

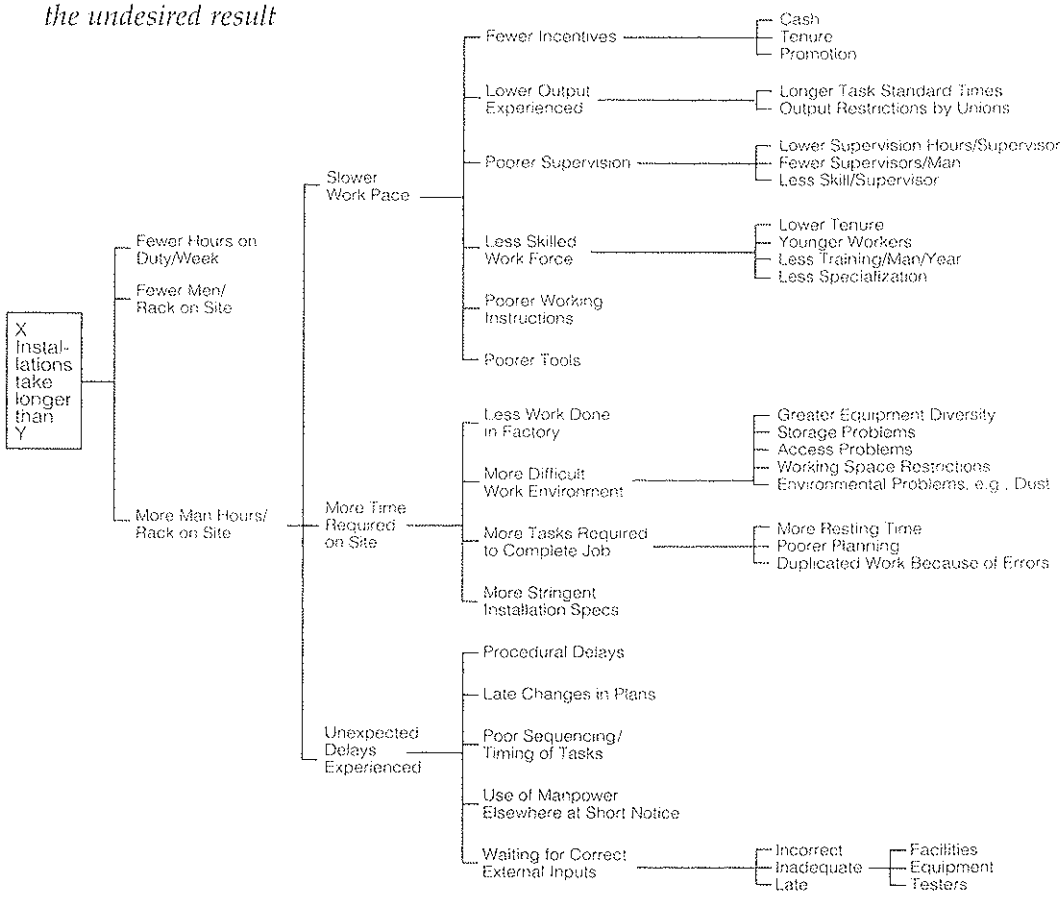


Contribution in a cigarette company, for example, is composed of Revenue minus Specification Costs (leaf, packing materials, duty, direct labor), minus Advertising and Promotion. These categories then become tasks (Increase Net Sales, Reduce Leaf Costs, etc.). You now know the key tasks of the business, and can analyze the numbers in the tree (trends, sensitivities, comparisons to industry and competition) to determine the priorities for performing them to increase EPS.

3. Activity Structure. Another approach is to use a tree to trace the activities that have to be performed to produce an undesirable end objective—high costs, for example, or overlong installation times (Exhibit 41). The trick here is to visualize all the causes that could possibly bring about the effect, and relate them at their proper levels.

For example, installation of telephone switching equipment involves work partly done in the contractor's factory and partly done by his men on the site. Elements at the site are the men doing the building, the facilities available to them, the equipment being installed, the testers testing the equipment, and the customer approving the procedure at various intervals. How do these all relate?

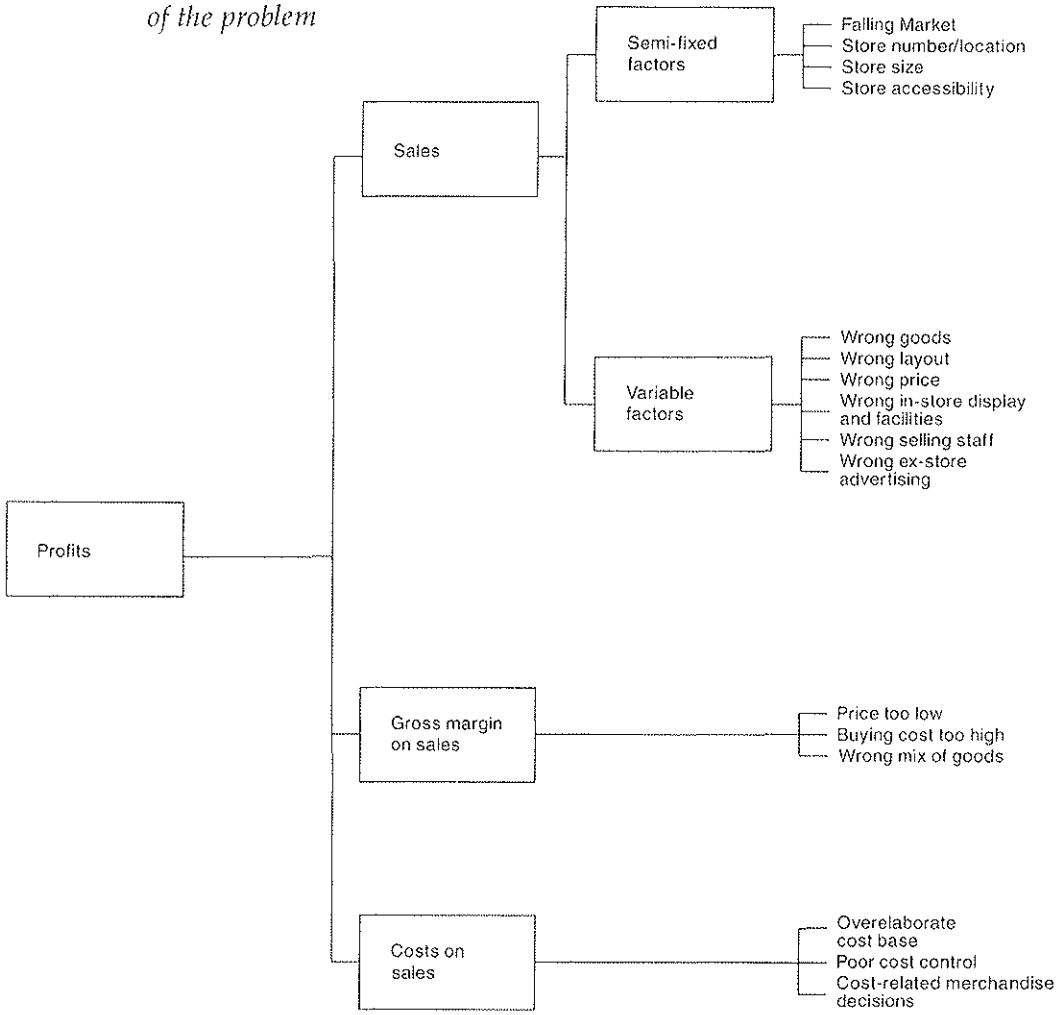
Exhibit 41 *Show the activities needed to produce the undesired result*



As you can see from Exhibit 41, you begin your tree with the undesirable effect you are trying to understand, that installations take longer than expected. At the next level you hypothesize the mutually exclusive and collectively exhaustive reasons that this result could occur: fewer men on each rack, more hours per man on each rack, fewer hours on duty per week.

You then take each possible reason and break it down further. What could cause more hours per man on each rack? Either the men are working more slowly, or the job itself demands more time, or there are unexpected delays. Again, you take each possibility and ask, why would this happen? The result is a complete list of the areas where facts could be gathered and analyzed. Your experience in the industry will tell you where to look first.

Exhibit 42 *Show the possible causes of the problem*



Classifying Possible Causes

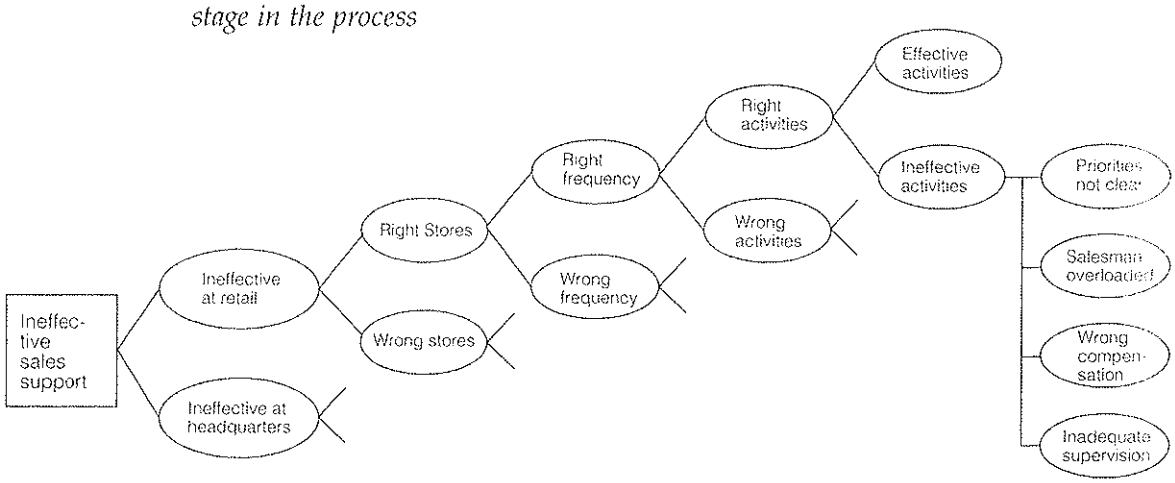
A third approach is to classify likely culprits by similarity, on the assumption that this pre-grouping will be helpful in synthesizing the facts. Thus, (Exhibit 42), you note that Sales can be off because of Semi-Fixed Factors or because of Variable ones. You assume Sales are off in both, and then determine what information you would have to gather to prove that (a) the falling market for the type of goods sold caused the Sales to fall off, (b) store coverage does not match the market, (c) store size cuts down on volume, etc.

The trick is to create a MECE classification at the upper branch, as a guide to generating the possible causes further down. You can then formulate yes-no questions that will allow you to identify or eliminate them as causes.

Another approach to classifying is the choice structure. This kind of tree is related to the activity structure, in that it attempts to find the causes of an undesirable effect. This time, however, you simply display dual choices until you reach a level where you have more precise knowledge of the likely causes.

In Exhibit 43, for example, if your sales support is ineffective, it can be ineffective at retail or at headquarters. If ineffective at retail, you can be either in the right stores or in the wrong ones; if in the wrong ones, then that is the problem. If in the right ones, then either you call with the right frequency or the wrong frequency; if the right frequency, then either the activities you carry out during the call are the right ones or they are the wrong ones, etc.

Exhibit 43 *Show the dual choices at each stage in the process*



The secret to this choice diagram is to visualize the sequential process involved in selling, and reflect it in your bifurcations. First you pick the store, then you call on it, then you do the right things in it, either well or poorly. The result again is an indication of the analyses that must be performed, and that will tell you how to solve the problem.

A more sophisticated version of the choice structure is the sequential marketing structure shown on the opposite page (Exhibit 44), and again I am indebted to B. Robert Holland for the example. The value of this structure lies both in its completeness and in the order in which analyses of each element are meant to be performed.

For example, your analysis might identify several indicators that your marketing program is less than adequate. Let's say the packaging is wrong, the advertising is wrongly directed, the promotion is sloppy, and those people who do buy the product don't use it frequently enough. Weaknesses identified on the left must be corrected before those on the right. Thus, there is no point in trying to coax people to use the product more frequently before you get your promotional house in order, and no point in spending money on promotion if you will continue to advertise to the wrong people.

Once you have developed a diagnostic framework, you have a wonderful explanatory vehicle for communicating with the client, in that it allows you to show him what is going on in his company, both in fact and in concept. You can let him see:

- What the structure/system looks like today as it delivers R1 (here's what's going on now)
- What logically the structure/system would have to have been to deliver the R1 they now get (here's what you must have been doing)
- What the structure/system ideally should look like to deliver the desired R2 (here's what you need to do to achieve your objective).

In the first and second cases, you can demonstrate the need for change by comparing it to the ideal. In the third, you can reveal weaknesses in the actual by matching it to the ideal.

The key thing to note about diagnostic frameworks, however, is the importance of yes-no questions. These questions serve the function of the "crucial experiments" sought by scientific problem solvers, in that their answers unambiguously identify or exclude the contributing causes of a problem. They also have the great advantage of telling you in advance when you will be finished with your research.

In this way diagnostic frameworks differ from and should not be confused with decision trees and PERT diagrams, which reveal the need for action as opposed to generating questions (Exhibit 45).

Exhibit 44 *Show the total sequence of decisions*

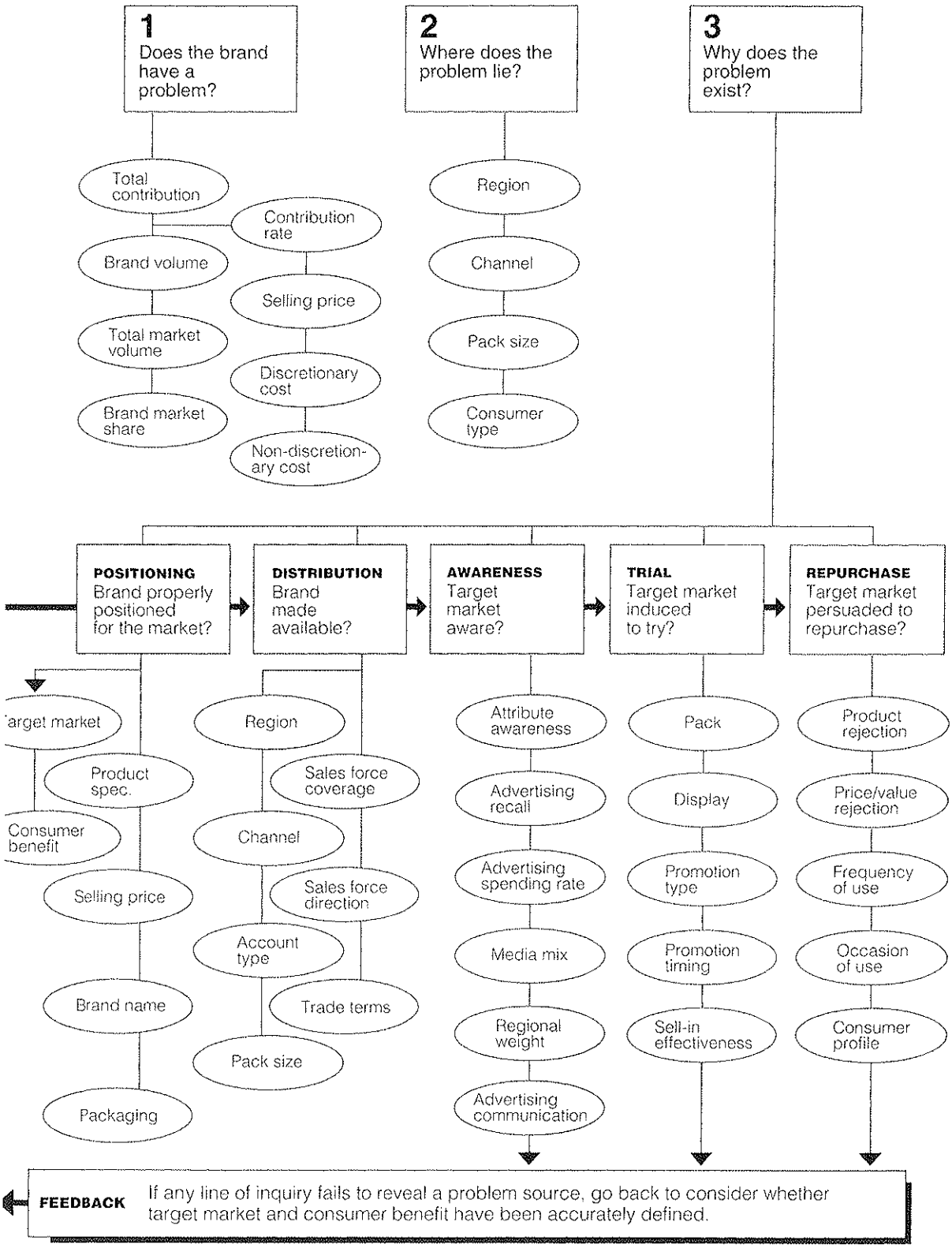
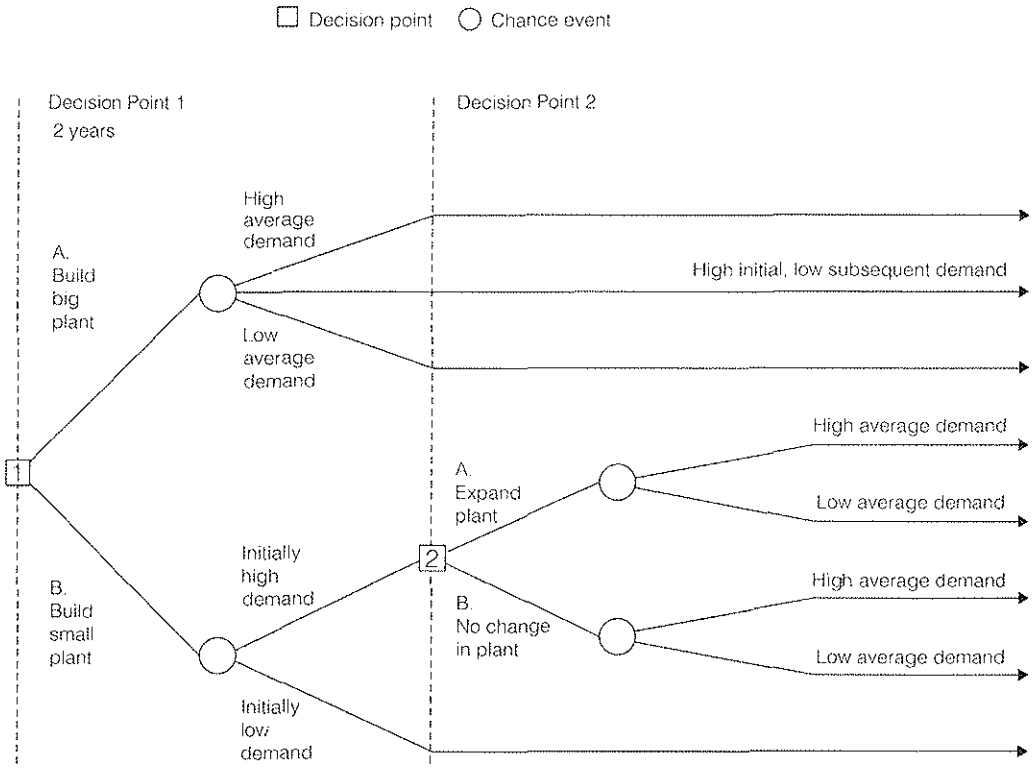


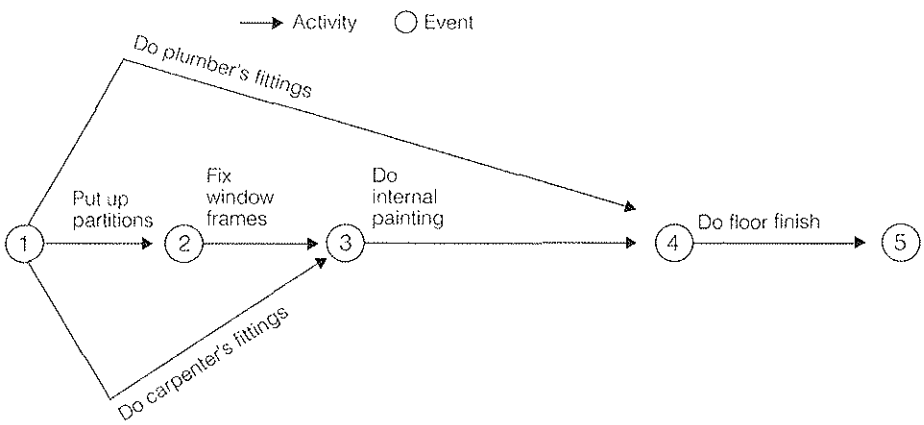
Exhibit 45 *Decision trees and PERT diagrams reveal only the need for action*

DECISION TREE



Harvard Business Review, July–August, 1964, "Decision Trees for Decision Making" by John F. Magee

PERT DIAGRAM

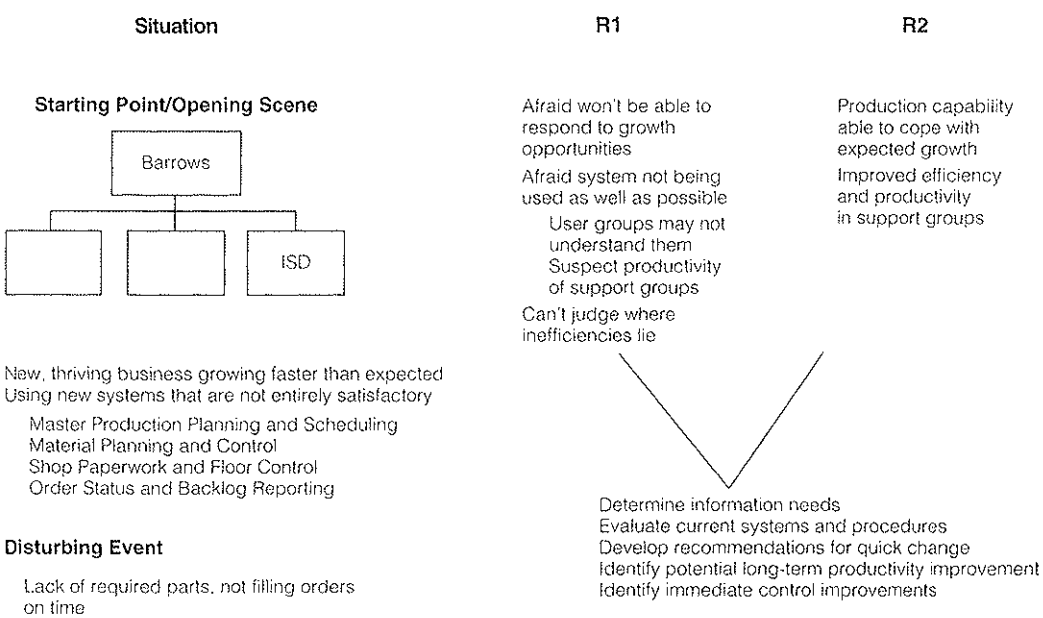


APPLYING THE FRAMEWORKS

The question I usually get asked at this point in explaining diagnostic frameworks is, "How am I supposed to know which framework to develop at which time? And how do I know whether to dig into all of a framework or only parts of it?" That of course depends on how much you know about the subject area under analysis. Good problem solving cannot be done in the abstract. It demands first that you have full knowledge of your field—manufacturing, marketing, information systems, etc. There is no substitute for extensive and accessible knowledge of the subject area within which the problem occurred.

Having said that, the diagnostic frameworks you need to develop to analyze a problem efficiently are generally implied by the Opening Scene of the problem definition. For example, Exhibit 46 shows the problem definition for a typical proposal to the Information Systems Division of a company called Barrows, and the steps the consultant said he would follow to solve the problem.

Exhibit 46 *Problem: ISD cannot respond to growth opportunities*



The Client's Problem

ISD was a newly set up division that presented Barrows with a problem companies rarely complain of: its business was growing faster than expected. However, despite new production planning and control systems, it was falling behind in filling orders, and there was a danger of missing out on growth opportunities.

Barrows suspected that ISD's user groups did not understand the new systems, and knew its support groups were not operating anywhere near full productivity. Thus, Barrows wanted the consultant to tell it how to bring the production capability up to full efficiency, and at the same time improve the productivity of the support groups.

Since the problem is low efficiency and productivity on the factory floor, the cause must lie in the activities and processes carried out on the factory floor. The first diagnostic framework called for would therefore seem to be a general picture of these activities and processes. The consultant did intend to gather data on them, but as part of a general data gathering activity rather than in a formal way. He said in the proposal that he would gather and analyze the following data:

- Growth projections
- Management objectives for the division
- Business information and management needs
- Current systems and procedures
- Areas of inefficiency, causes of low productivity
- Causes of poor control
- Measures of inventory accuracy, record of book-to-inventory differences
- Present resources, how used

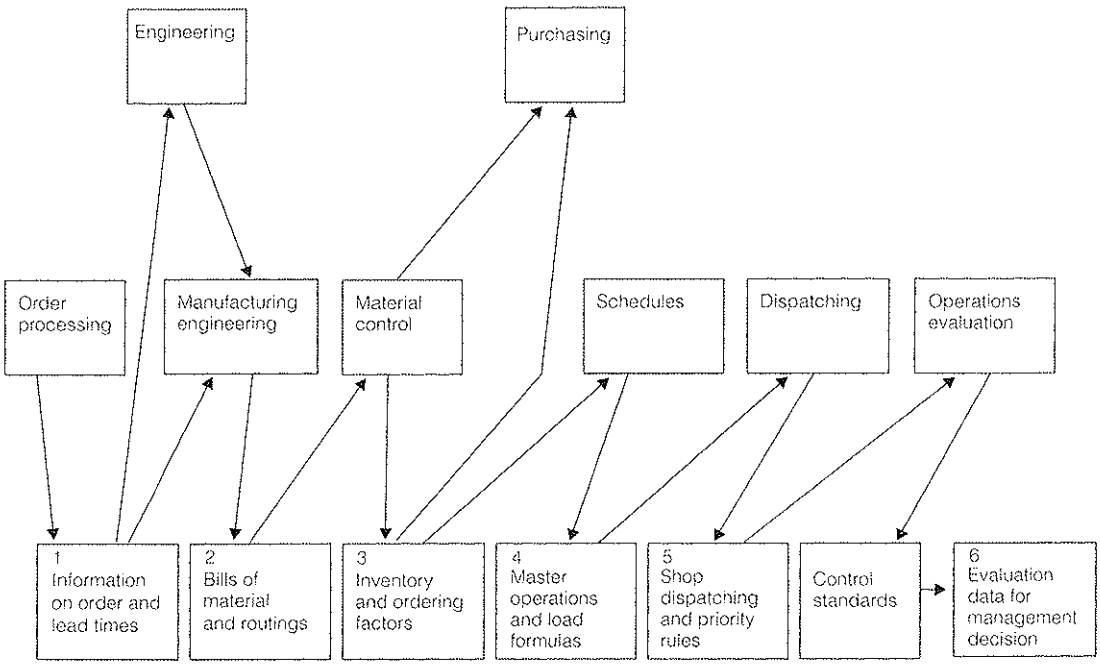
If the consultant follows the standard pattern for data gathering by going out and interviewing people in the Barrows organization about each of these areas, he is likely to come back with huge amounts of data that he will have to organize, synthesize, and analyze. Not only will he be unable to take in and assimilate all of the information that is made available to him, he will have no easy and objective means of telling which bits are relevant and which not.

If, on the other hand, the consultant begins by gathering only the data necessary to develop a diagnostic framework that shows the structure and interactions of the present operations, he will be able to look at it knowledgeably and make some pretty good guesses (hypotheses) about the probable causes of the problem. He will then be able to direct his data gathering efforts to accumulate only the information that will enable him to prove or disprove his guesses.

The Approach to Analysis

Exhibit 47 shows a partial flow diagram of the system he might develop as the basis for efficient data gathering.

Exhibit 47 *Base data gathering on an understanding of the organization*



With this kind of diagram as a reference point, the consultant can make an educated guess at where the areas of weakness are likely to be, specify exactly what he would expect to find if there were a weakness, and formulate his data-gathering questions accordingly. For example:

1. *Order and lead times*—do they promise uncompetitive lead times, and do they deliver as promised?
2. *Purchased items*—are there delays or excessive costs in obtaining raw materials, parts, and sub-assembles?
3. *Availability of stock items*—are shortages and stock-outs hurting sales or increasing costs?
4. *Availability of capacity*—is capacity adequate to meet forecast demand?
5. *System costs*—are management controls in one area throwing the system out of balance and increasing costs in others?
6. *Management reports*—do status and labor efficiency reports provide the necessary control?

Now he can plan his data gathering effort by asking himself, "What do I have to find out in order to answer each question yes or no?" Certainly he will want much of the information indicated in the original list shown previously (except for "current systems and procedures" and "present resources, how used," which will have formed the basis for drawing the diagram shown in Exhibit 46). But he will know in advance the relevance to his analysis of each of the other pieces of data he gathers, as well as whether further data not yet thought of are needed.

Also noteworthy from an administrative point of view is that, before he begins the work, the consultant can identify the source of each piece of data, assign responsibility for collecting it, work out the schedule for gathering it, and estimate costs. The entire effort should thus bring him relatively quickly and efficiently to the causes of the problem, and allow him to develop suitable, even creative, recommendations to alleviate them.

Of course, as indicated earlier, the ability to generate creative solutions to problems will always reside with those people steeped in their subject. Deep knowledge of a subject often enables a problem-solver to achieve insights and see alternatives well beyond the realm of strict logical reasoning. Those without that level of insight, however, may want to use logic trees to help them generate possible solutions.

DEVELOPING LOGIC TREES

Logic trees help to generate alternative ways to solve a problem. Think back to the steps of the sequential analysis process we looked at earlier:

1. Is there a problem?
2. Where does it lie?
3. Why does it exist?
4. What could we do about it?
5. What should we do about it?

In steps two and three, you model what exists, using physical flow diagrams and cause-effect structures that show how the company's business elements, activities, or tasks relate as a system. In steps four and five, you look the other way, as it were, and

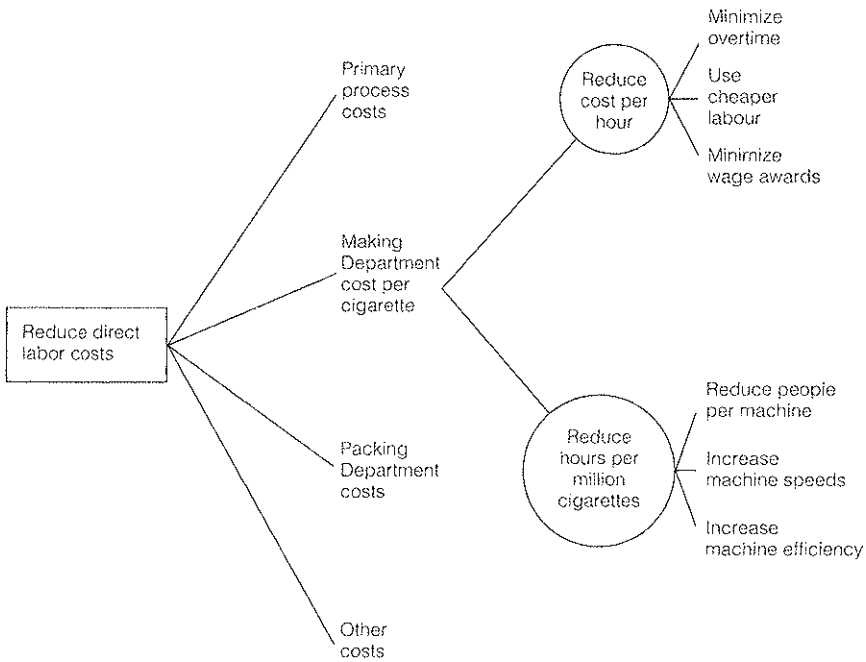
use a logic tree to generate possible solutions and the likely impact on the company of implementing those solutions. You can also use logic trees to reveal flaws in grouped ideas once your document is written.

Generating Possible Solutions

Logic trees allow you to spell out logically possible actions that could be taken to solve a problem. For example, you recall the Task Structure shown in Exhibit 40 on page 146. One of the costs identified as too high was indirect labor.

To determine how the client should go about cutting the cost of his indirect labor, the consultant used a logic tree to make a systematic and logical breakdown of the mutually exclusive and collectively exhaustive possibilities for doing so. Exhibit 48 shows a portion of the tree.

Exhibit 48 *Show the possible ways to cut costs*



To explain the breakdown in Exhibit 48:

¶ Break direct labor cost into its elements
Primary Preparation Process
Cigarette Making Department
Packing Department
Other

- Break cost per cigarette into cost per hour and hours per million cigarettes, since

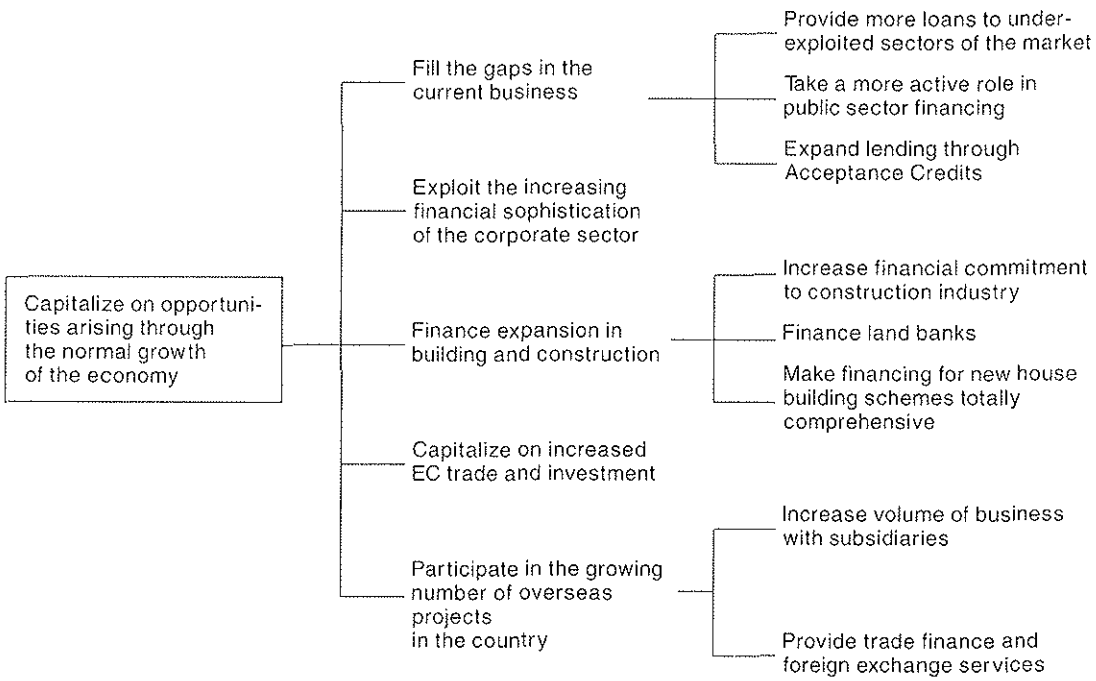
$$\frac{\text{Cost}}{\text{Hour}} \times \frac{\text{Hours}}{\text{Cigarettes}} = \frac{\text{Cost}}{\text{Cigarette}}$$

- State the ways cost per hour can be reduced
  - Reduce overtime
  - Use cheaper labor
  - Minimize wage awards
- State the ways hours per million cigarettes can be cut
  - Reducing people per machine
  - Increasing machine speeds
  - Increasing machine efficiency
- Continue to the next level

Once the logical possibilities are laid out in this way, the consultant can calculate the benefit and estimate the risk of taking each action, in order to arrive at the recommended final set of actions.

You can use the same logic tree approach to lay out strategic opportunities. Exhibit 49 explores some of the strategic opportunities for growth in a small European country, and what would be required to achieve each. Again, you try to be as collectively exhaustive as possible.

Exhibit 49 *Show the available strategic opportunities*



Revealing Flaws in Grouped Ideas

You can use this same technique of displaying the logical relationships between groups of activities to question the logic of what you've written. A good example of how to do so can be seen in analyzing the lists of so-called *Key Issues* shown in the box below. These were taken from a proposal to a company in Texas that distributed pipes and fittings to construction sites around the state.

The company purchased the products from suppliers, and stocked them in a central warehouse; this warehouse in turn supplied a dozen or so smaller warehouses in regions throughout the state. The company had just been taken over, and the new owners thought that an inventory cost of $27 million for the central warehouse was too high. In addition, because the central warehouse was frequently out of stock of some items, the outlying warehouses also ordered direct from suppliers, further increasing inventory cost.

Key Issues Based on our discussion, several issues emerged that should be addressed since the answers will affect improvement opportunities and, possibly, future business strategy. These issues are preliminary only, and we would expect others to emerge.

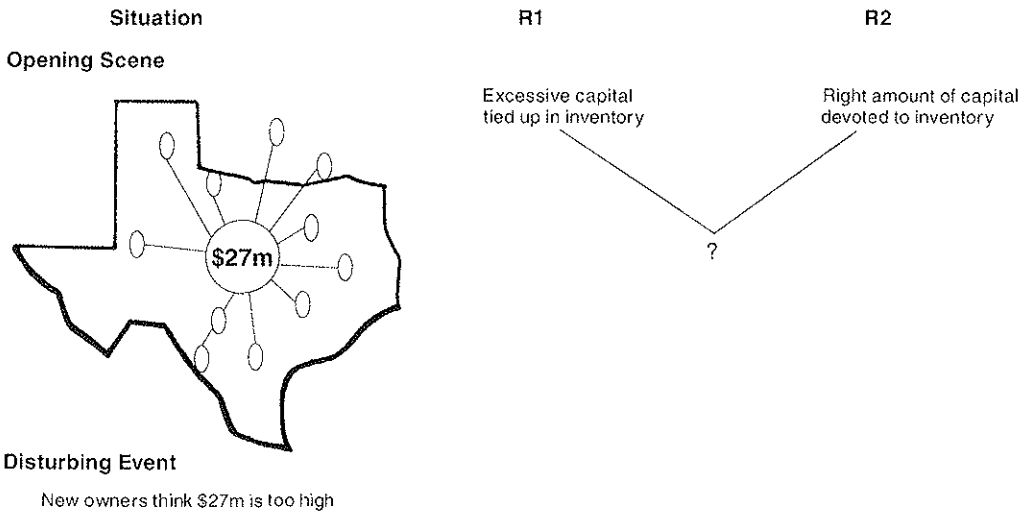
1. **Is the present inventory management system suitable for all elements of the business?** We understand that a computerized "IMPACT" type system is in use. We are familiar with systems of this type, and find them quite useful in nonmanufacturing, stocking businesses in which thousands of relatively stable stockkeeping units are processed. However, it may not be as effective a method as others of determining stock levels and placing orders both centrally and in the regions.
2. **With present systems, procedures, and organizational relationships, what is the level of inventory investment necessary to meet customer service objectives?** A determination should be made of the investment required to serve present markets with the current products offered under existing procedures. This will provide the proper base from which to determine opportunities for improvements through change as opposed to those that could be realized through more control or discipline in the use of present systems and techniques.
3. **Are centralized inventories cost effective for you?** In the Piping Group, two centralized inventory pools are maintained, for tube products and valves and fittings. These pools were established when the business was small and working capital extremely limited. The central pool was intended to achieve lower inventories, lower cost, and better service, particularly for large construction projects; management is questioning this policy.
4. **What are present levels of obsolete and slow-moving inventories?** Excessive inventories are frequently a result of problems in this area. A key part of the analysis should concentrate on determining current inventory excesses. More importantly, we will determine the root causes so that recommendations to prevent reoccurrences can be developed.
5. **With changes in inventory policies, organization structures, and systems, how much improvement can be made in inventory turn?** This is the key issue, and could affect long-term business strategy. Management is willing to consider changes in long-established operating procedures if such changes can reduce the working capital intensity of the business.

Here again we have a very wordy, ugly, mediocre expression of a business message. And again its impenetrability results from the writer's lack of a clear image to be communicated, itself the result of a confused approach to the problem solving.

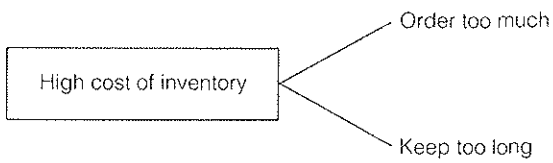
The first question to ask ourselves is, does the list really include "key issues"? And how do they relate to our definition of the problem? Strictly speaking, an issue is a question so phrased as to require a yes-or-no answer. Phrasing it in this form permits us to direct our analysis to a specific end product needed to prove or disprove our understanding of the causes of the problem.

Accordingly such questions as number two, "What level of inventory investment is necessary?" are not issues. Stated as an issue, the question would be "Is the present level of inventory too high?" or "Do we need as much inventory as we now have?" Given your understanding of the problem-solving process from Chapter 8, you will be able to recognize these rephrasings as attempts to define how we will know when we have solved the problem.

The problem now is that the cost of the inventory at $27 million is thought to be too high (R1), and it should be instead some other number (R2). The first thing to establish is what that other number should be, so that we can judge whether in fact the present levels *are* too high.



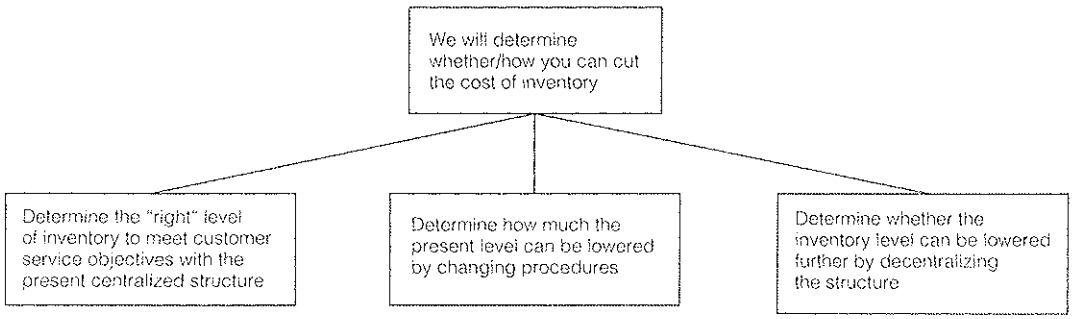
Assuming that the figure is too high, we can use a tree diagram to identify the possible causes of its being too high. What does one do to create inventory at high levels? Perhaps this:



Now we can frame proper issues, which turn out to relate somewhat to points 2 and 4 in the issue list.

- Is the centralized management system placing orders properly?
- Is it keeping too much obsolete and slow-moving inventory?

What does all this tell us? First, that talking about issues here is misleading. Instead, what is being discussed is the *process* the consultant will follow to solve the client's problem. What is that problem? That his centralized system ties up too much working capital in inventory. He should probably be saying something like this:



In general, I don't believe there ever is a need for a section called "Issues," especially in a consulting proposal. The issues, if any, will always derive from the analytical process to be used to solve the problem. So the issues, the process, and the end products of the study all turn out to be the same thing.

Indeed, I find thinking in terms of "issues" always to be nonproductive. Let me do one more example, to hammer home the value of using logic trees to reveal relationships. Here is another set of "issues," more confused if possible than the previous group. They are really questions meant to identify the alternative ways available to reduce the cost of energy consumed in a factory.

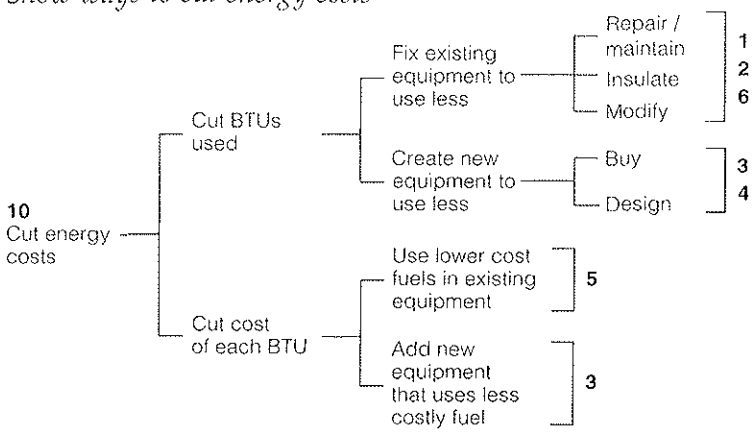
Major Issues

1. How much can we reduce energy costs by improving operating practices and implementing simple, low capital engineering projects in each of the primary mills?
2. Given that we can significantly reduce energy costs by improving mill operating procedures, what is the magnitude of our cost advantage/disadvantage compared to our competition? Is it sustainable?
3. How much of a competitive lead in lower energy costs could a sharply focused capital spending program provide?
4. What are the right energy development programs (i.e., research, engineering) to significantly improve our competitive position?
5. What is the best mix of fuels and sourcing arrangements to control costs and ensure supply—both short and long term?

6. Does our capital project evaluation and approval process quickly surface and implement the best energy projects to provide maximum benefits in all appropriate mills?
7. What programs are needed to most effectively influence government funding, taxation, and regulatory action?
8. What human resources are needed to effectively manage the necessary energy tasks—i.e., organization, responsibilities, skills, resources?
9. To what extent are product/mill assignments creating a competitive penalty because of energy?
10. What is our corporate energy strategy and the business plan for pursuing it?

If you tried to diagram the alternative ways to reduce the cost of energy, you would get a choice diagram like Exhibit 50, where the numbers of the issues that relate to it have been inserted.

Exhibit 50 *Show ways to cut energy costs*



You can see that Issues 7, 8, and 9 simply don't relate to the subject. Issues 1, 2, and 6 are related to fixing the existing equipment to use less, Issues 3 and 4 are related to creating new equipment to use less, Issue 5 speaks to using lower cost fuels in existing equipment, and adding new equipment that uses less costly fuel is touched on in Issue 3. Issue 10 refers to cutting energy costs altogether.

Remember, all groupings of ideas must have had their origin in an analytical activity of the mind. In situations where you are trying to solve a problem, the likelihood is that your groupings derived from one or another of the structures you created to guide your analysis. Matching your ideas to these structures can help you to verify their logical validity.

PERFORMING AN ISSUE ANALYSIS

The process of developing diagnostic frameworks is sometimes called "Issue Analysis." However, the term Issue Analysis is so often used more broadly (and quite imprecisely) to mean almost any logic tree, that people have become confused about how to use either diagnostic frameworks or the other logic trees available. To that end, I want to explain exactly where the confusions lie.

First of all, the word "issue." Strictly speaking, an issue is a question so phrased as to demand a yes or no answer. It comes from the legal phrase "at issue," and it implies there are two sides arguing a point, one of which will prevail. Thus "How should we reorganize?" is not an issue, since there is nothing *at issue*. "Should we reorganize functionally?" *is* an issue, and it implies that the thinking has been sufficiently developed to bring one to decision point.

We have seen that yes-no questions are vital to problem solving because they enable clear-cut answers. It is the ability to formulate clear-cut, yes-or-no questions that dictates how efficient a problem-solving effort will be. Consequently, to avoid confusion at least in the language, I suggest you use "concerns" when you are simply listing topics that indicate what worries the client, and leave "issues" to denote yes-no questions.

The History

So far as I can ascertain, the phrase Issue Analysis was first coined by David Hertz and Carter Bales at McKinsey & Company during a study for New York City in the 1960s, when John Lindsey was Mayor. Issue Analysis was a technique they developed for analyzing decisions in a complex situation. It applied some of the sophisticated principles of systems analysis then in use by the U.S. Department of Defense. It was meant to help urban managers clarify their options and give them confidence in the rationality of their decisions when

- The need for a decision was urgent (e.g., How much subsidized middle income housing should the City provide?)
- More than one alternative had merit
- Many variables had to be manipulated and many objectives considered
- Results could be measured by varied, often conflicting criteria
- The ultimate course of action could have significant impact on other decision areas.

THE MINTO PYRAMID PRINCIPLE

PART FOUR
LOGIC IN PRESENTATION

INTRODUCTION TO PART 4 LOGIC IN PRESENTATION

Once you have worked out the logic of your pyramid and are ready to communicate the ideas, you want to be sure to arrange them so that the reader can visually grasp the various divisions of thought that make up the hierarchy of your pyramid. This is true whether you choose to present the ideas in written prose on a page or in bullets and graphics on a screen.

It used to be, of course, that all business documents were presented as written prose in memorandum or report form. But as printing and graphics technology developed, the concept of the "visual presentation" was born. Originally, this took the form of transparencies on overhead projectors, or the somewhat more elegant 35 mm slides controlled by a remote button and revealed on one or more screens. Today you can make your own slides by computer, or even project full-motion video graphics in living color.

The presentation form you choose will depend on the length of the message and the number of people for whom it is intended.

- If the message is short and intended for one or a few people, the likelihood is that you will present it as written prose in memorandum or report form, and send it directly to the recipients to read by themselves.
- If the message is short and meant for many people, you may want to present the ideas in the form of a "dot-dash memo" or "lap visual," to be discussed sitting around a table.

- If the message is long and meant for a large number of people, you are likely to put it in slide form and present the slides using either an overhead projector or a computer to show the images.

Regardless of form, you need to make sure that you display the ideas on the page or screen in a way that visually reinforces the logic of the pyramided ideas and their relationships to each other. The reader's or viewer's eye always sees the logic before his mind comprehends it. Thus you want to use what the eye sees to reinforce what the mind receives.

The techniques for making the logic visually clear differ depending on whether the reader will read the ideas alone from the printed page or in company with others from a screen while listening to an ongoing commentary. And you will not be surprised to learn that, in either case, there are rules you need to follow in applying the techniques. Accordingly, this section will talk about the rules for making sure the ideas are visually clear to the reader in both prose form and presentation form. It will end with a few hints for making sure that the sentences in which you communicate your ideas, whether orally or in writing, convey their meaning as clearly as possible to your reader or listener.

10 REFLECTING THE PYRAMID ON THE PAGE

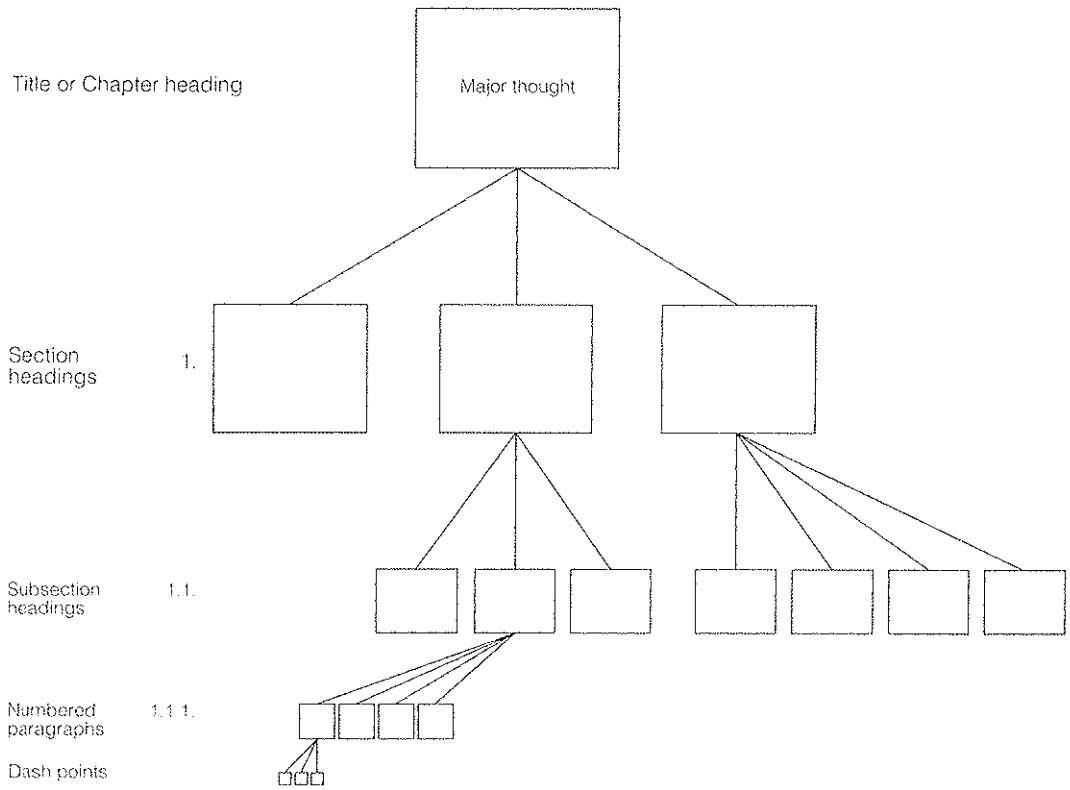
In actual practice, most of the documents you write will be in prose on a page to be read by an individual person sitting alone. Whether the document is long or short, you want the reader to be able literally to see and absorb the major ideas as quickly as possible. Ideally, he should have your entire thinking (Introduction, Main Point, and Key Line points) in the first 30 seconds of reading. And you want him also to be able to see that (and how) subordinate groups of ideas relate to each other.

If you are writing a long report, you can reflect the pyramid hierarchy on the page in a variety of ways, the most common of which are (a) hierarchical headings, (b) numbered and underlined points, (c) decimal numbering, (d) indented display, and (e) dot-dash outlines. Feelings run high about which of the first three is the "best" formatting device for the report as a whole. I myself lean to the use of hierarchical headings as described below. However, in deference to what are excellent reasons given by proponents of the other options, I discuss them as well.

Whichever formatting device you choose, remember that your objective is to make it as easy as possible for the reader to comprehend the major points and all of the grouped support points in what might be a very lengthy document. This means that

the format must be applied to match the levels of abstraction in your argument (Exhibit 53), and you must be sure to write transitionary phrases that take the reader gracefully from one grouping to another, as needed.

Exhibit 53 *Headings should reflect the divisions of thought in the pyramid*



HIGHLIGHT THE STRUCTURE

If the document is very short (fewer than two paragraphs to support each Key Line point), making the reader see the points and how they relate is easy. You simply underline them, and they will literally "jump out" at the eye (Exhibit 54).

Exhibit 54 *Make the points "jump out" at the eye*

TO DATE

FROM SUBJECT Superfight Sweepstakes

We have now received the sweepstakes rules and the proposed copy for television viewers. Will you please review them and advise whether they appear to be acceptable for scheduling. I have three concerns.

1. How will viewers learn the rules? It is my understanding that viewers can enter this contest simply through the television commercial. This means they will not have access to the official rules, which direct that if the coupon is not used, an entry is to be on a "3 by 5" plain sheet of paper and the information is to be handprinted with the words NATIONAL STAR. Since the rules are in the newspaper only, one would have to buy the paper and there would seem to be a lottery problem.
2. Will they do the forecast? The copy says that the prizes are to be awarded on the basis of a random drawing. Nowhere does it indicate that only winning forecasts will be recognized in the random drawing, which the agency tells me will be the case. As it stands now, why should anyone go to the trouble of forecasting?
3. Will the commercial be clear? I have also mentioned to the agency that sweepstakes information, if acceptable, would have to be produced in such a manner as to be perfectly clear to the viewer. And based on the very rapid techniques used in last season's commercials, this may present possible difficulties.

We look forward to hearing from you. Many thanks.

If, on the other hand, the document is longer than a paragraph or two for each Key Line point, you want to introduce the points and then reflect them with headings (Exhibit 55).

Exhibit 55 *Set out the Key Line Points*

TO DATE

FROM SUBJECT August 25 Field Sales Meeting

During the August 25 field sales meeting, we plan to teach you how to design a potentially profitable beverage section for a supermarket chain, and present that design to the chain's management. To conduct the exercise, we need the profile of a problem chain from each region. This means that we must ask you to:

- Select a suitable chain by July 11
- Collect the necessary data by August 10
- Organize and return the data by August 15

SELECTING THE CHAIN

To be suitable for our purposes, the chain you select should be....

Exhibit 56 *Match the heading to the hierarchy of ideas*

1 THIS IS A CHAPTER HEADING

Chapter headings are numbered and centered, and should be worded to reflect the major thought to be developed in the chapter. The paragraphs immediately following a chapter heading (or title) should express the major idea clearly, as well as supply whatever other information the reader requires to ensure that you and he are 'standing in the same place' before you make your point and tell him how you plan to develop it. Subsequent chapter headings should be written in parallel style.

The major divisions of thought you plan to have may be set out with paragraph points or some other distinguishing mark:

¶ First major thought to come
¶ Second major thought to come.

THIS IS A SECTION HEADING

The wording of section headings should also reflect the idea to be developed in the section to follow, and the wording of the first should parallel that of the others. A section can be further divided either into subsections or, if the points are short, into numbered paragraphs. The principal ideas of the subsections should be introduced and may be set off with paragraph points:

¶ First subthought to come
¶ Second subthought to come.

This is a
Subsection Heading

These, too, should be worded to reflect the principal thoughts they cover, and expressed in parallel style. If you wish further to divide the thought in a subsection, you can use numbered paragraphs.

1. This is a numbered paragraph. The first sentence or opening phrase can be underlined to highlight the similarity of the points being numbered. The point to be made may require more than one paragraph, but you should try to limit the development of the point to three paragraphs.

   – This is a dash-point paragraph, which is used to divide the thought in a numbered paragraph

     • You seldom break an idea down as far as dot-points but when you do it looks like this.

* * *

Besides these devices for dividing thoughts, you might also want to use stars (*) and paragraph points (¶). Stars can be placed three in a row, in the center of the page, to indicate that a concluding comment to a long section is about to follow (see above). The paragraph point (¶) can be used to set out lists when the number of items to be included is fewer than five (for example, for the section headings listed above), or to call attention to a single paragraph that contains a point to be emphasized.

¶ These paragraphs should be written in block form and kept as short as possible.

Hierarchical Headings

Essentially, the technique for using hierarchical headings is to place signs for increasingly subordinate ideas ever further to the right of the page, and to treat ideas at the same level in the same visual form (Exhibit 56).

Thus, major ideas are capped with major section headings at the left-hand margin, divisions of these major ideas are capped with subsection headings, divisions of those with numbered paragraphs, and so on. The style of heading you choose need not necessarily follow this particular form, of course, but whatever the form, each heading should represent a division of thought.

To that end, you will want to take care that you:

1. *Never use only one of any element.* Since the headings indicate levels of abstraction in the pyramid, you can never have only one item at any level. Thus, you can never have only one major section, or one subsection, or one numbered paragraph, or one dash point. Put more plainly, you shouldn't just stick in a heading because you think it would look good on a page, the way newspapers and magazines do, to break up the printing. A heading is meant to call attention to the fact that the idea it represents is one of a group, all of which work together to explain or defend the overall thought they support.

2. *Show parallel ideas in parallel form.* Since all the ideas in a group are the same kind of idea, you want to emphasize this sameness by using the same grammatical form for the wording of each heading, etc. Consequently, if the first idea in a group of major section headings begins with a verb, all the rest must as well; if the first idea in a group of subsection headings begins with an "ing" word, so should all the others:

Appoint a Full-Time Chief Executive
- To Coordinate Activities
- To Effect Improvements

Establish Clear Lines of Authority
- Regrouping Hotels by Support Needs
- Assigning Responsibility for Overseas Operations
- Removing Boards from the Chain of Command

As you can see, because the subsection headings in the first group begin with the word "To" does not necessarily mean that those in the second group must do so as well. Remember that there are invisible fences imposed between the ideas in each major section. Thus, the parallelism to be emphasized is between ideas in the subsection group, not between groups of subsections.

3. *Limit the wording to the essence of the thought.* The headings are meant to remind, not to dominate. Thus, you want to make them as concise as possible. You would not want, for example, to make the first major section heading above read "Appoint a Full-Time Chief Executive to Provide Clear Central Authority." That is way too many words for the purpose.

4. Regard headings as outside the text. Headings are for the eye more than they are for the mind. As a result, they are not often read carefully, and you cannot depend on them to carry your message as part of the text. Don't, for example, say:

> *Appoint a Full-Time Chief Executive*
> This action will go far toward clarifying the day-to-day responsibilities of . . .

Instead, you need to make sure that your opening sentence under a heading indicates that you are turning to a new topic. In fact, your entire document should be able to be read as a smooth-flowing piece without the headings. This rule, however, does not apply to numbered paragraphs, which are meant to be read as part of the text.

5. Introduce each group of headings. In doing so, you want to state the major point that the grouping will explain or defend, as well as the ideas to come. To omit this service is to present the reader with a mystery story, since he will then not be able to judge what the points are you are trying to make in that section until he gets to the end—and by then he may well have forgotten the beginning. For this reason, you should never have a major section heading begin immediately after the title, nor should you ever have a subsection heading begin immediately after the section heading.

6. Don't Overdo. This is perhaps the most important rule of all. You want to use headings only if they are going to help to clarify your message—if they are going to make it easier for the reader to keep the subdivisions of your thought in his head. Often it is not necessary or useful to have any division below the major section headings.

If you formulate your headings properly, they will stand in the table of contents as a precis of your report—another extremely useful device for the reader in trying to come to terms with your thinking. You can get an idea of the communicating value of this from the headings under point 2 opposite. You can also, of course, see that this technique will work only if you have made sure to put real ideas in the boxes in your pyramid. It is of no value to the reader in communicating your thinking if you give him a table of contents that reads as follows:

Table of Contents

Introduction	1
Background	2
Findings	3
Conclusions	15
Recommendations	23

You would in any case generally not need a heading called "Introduction" or "Background" as part of a report. To begin with, they overlap because both contain introductory information. In addition, they are unnecessary—what else would the first

few paragraphs of the document be? Headings are meant to show *divisions of thought*, and the "thought" in the above example does not begin until one gets to the Key Line level, which theoretically begins here with the "Findings."

Underlined Points

Another popular approach to showing the hierarchy of ideas is to underline the entire statement of the support points below the Key Line level (Exhibit 57). Lower level support points are also stated in their entirety and underlined, but are distinguished by form and indentation.

Exhibit 57 *Indenting and underlining points also shows hierarchy*

REFLECT THE MAIN POINT IN THE TITLE

Write a paragraph or so for the situation. xxx xxxxx xxxxxxxx xxx xxxxx xxxxxxxx xxx xxxxx xxxxxxxx xxxxx xxxx xxxxxxxx xxx xxxxx xxxxxxx xxx xxxxx xxxxxxx xxx xxxxx xxxx

Write a paragraph or so for the complication and the question. Sometimes the question is implied. xxx xxxxx xxxxxxxx xxx xxxxx xxxxxxxx xxx xxxxx xxxxxxxx xxx xxxx xxxxxxxx xxx xxxxx xxxxxxxx xxx xxxxx xxxxxxxx xxx xxxxx xxxxxxxx xxx xxxxx xxxxxxxx

State the main point. If the document is longer than seven paragraphs long, state the points on the key line:

- ¶ First Key Line point
- ¶ Second Key Line point
- ¶ Third Key Line point.

PUT A HEADING TO MATCH THE FIRST KEY LINE POINT

Write a short introduction leading up to and restating the main point. Again, if the section will be longer than seven paragraphs, state the points, centered, on the lines below, and then:

1. NUMBER THE SUPPORT POINTS, IN UPPER CASE, AND UNDERLINE, AT THE MARGIN.
   (1) Indent, Number in Parentheses, Underline the Points, in Upper and Lower Case, at the Next Level.
      1. If the Document is Very Long, Number Without Parentheses, Indent, and Underline, in Upper and Lower Case, the Points at the Next Level.
         - Indent with a dot the points at the next level, capitalizing only the first word.
           - Indent with a dash the points at the next level, capitalizing only the first word.

This form is rather ugly on the page. The advent of computers has led many people to write the major points in bold type, and leave the underlining to lower level support points, which at least makes for a more attractive page.

1. NUMBER THE SUPPORT POINTS, IN UPPER CASE, AND UNDERLINE AT THE MARGIN.

   (1) **Indent, Number in Parentheses, Underline the Points, in Upper and Lower Case, at the Next Level.**

      1. If the Document is Very Long, Number Without Parentheses, Indent, and Underline, in Upper and Lower Case, the Points at the Next Level.

Either way, the stated purpose of the format is to provide speed and ease in reading. The theory is that the reader should be able to zip through if he wishes, reading only the major points, and in that way comprehend the entire message easily. While this may be lovely for the reader, it can be a bit difficult for the writer, because it imposes some strict rules on him.

1. You must be absolutely disciplined in applying question/answer logic. Points below must directly answer the question raised by the point above, and no more. There is no room in this format for graceful liaisons of language or attempts at amplification. Such things destroy the clean, stark presentation of the logic. If you must amplify or give background, you will have to do so in the introductory or concluding paragraphs to each section.

2. You must be careful to word the points so that they state their message as sparsely as possible. It destroys the ease with which the logic can be comprehended if the reader must wade through 30 words before he grasps the point. If you find yourself with more than a dozen words, or more than one subject and predicate, think again.

3. You must be totally ruthless in limiting your points to the outline of your deductive or inductive argument. Most people disregard this requirement and simply list points, ignoring the niceties of either induction or deduction. You know that there are never more than four points in a chained deductive argument, and never more than five in an inductive one. If you find yourself going beyond, the likelihood is that you have overlooked an opportunity to group, and should rethink what you are saying.

Decimal Numbering

Many companies, and most government institutions, like to use numbers rather than headings to emphasize the subdivisions of a document, and some go so far as to number every paragraph. This approach is claimed to have the advantage that any single topic or recommendation can be easily and precisely referred to.

However, frequent index numbers do tend to interrupt the reader's concentration on the content of the document, or on any section of it, as a whole. In addition, they have a distinct practical disadvantage, in that any amendment to the finished copy that eliminates a paragraph or so could necessitate the renumbering of all subsequent paragraphs. A nuisance, even with word processing.

If you decide that you prefer to have numbering because of its value as a quick guide, you would be wiser to use it in conjunction with, rather than as a replacement for,

hierarchical headings. The headings have the value of enabling the reader to pick up the gist of the ideas quickly as he reads. And they are quite useful in refreshing his memory if he finds he has to go back to the document several days after his initial reading.

In addition, you will usually find that saying, "In Section 4.1 on manufacturing profits. . ." is clearer as a reference locater than is saying only, "In Section 4.1. . ." In the former case, the person has the general idea in mind as he turns to the specific reference; in the latter, he must get to it before he can begin to think about it.

The excerpt shown in Exhibit 58, from the opening of Chapter 5 of Antony Jay's fine book, *Effective Presentation,* illustrates the way you want your document to end up looking if you use the headings/number form.

Exhibit 58 *Match the numbers to the hierarchy of ideas*

5. DELIVERY AND THE USE OF WORDS

Xxxx xxxxx xxxxxxxx xxx xxxxx xxxxxxxx xxx xxxxx xxxxxxxx xxxxx xxxx xxxxxxxx xxx xxxxx xxxxxxx xxx xxxxx xxxxxxx xxx xxxxx xxxx

Xxxx xxxxx xxxxxxxx xxx xxxxx xxxxxxxx xxx xxxxx xxxxxxxx xxxxx xxxx xxxxxxxx xxx xxxxx xxxxxxx xxx xxxxx xxxxxxx xxx xxxxx xxxxxxxx xxxxx xxxxxxxx xxx xxxxx xxxxxxxx xxx xxxxx xxxxxxxx xxxxx xxxx xxxxxxxx xxx xxxxx xxxxxxx xxx

5.1 THE PROBLEMS OF UNSCRIPTED PRESENTATION

Xxxx xxxxx xxxxxxxx xxx xxxxx xxxxxxxx xxx xxxxx xxxxxxxx xxxxx xxxx xxxxxxxx xxx xxxxx xxxxxxx xxx xxxxx xxxxxxx xxx xxxxx xxxxxxx xxxxx xxxxxxxx xxx

5.1.1 Visuals

Xxxx xxxxx xxxxxxxx xxx xxxxx xxxxxxxx xxx xxxxx xxxxxxxx xxxxx xxxx xxxxxxxx xxx xxxxx xxxxxxx xxx xxxxx xxxxxxx xxx xxxxx xxxxxxx xxxxx xxxxxxxx xxx xxxxx xxxxxxxx xxx xxxxx xxxxxxxx xxxxx xxxx xxxxxxxx xxx xxxxx xxxxxxx xxx xxxxx

5.1.2 Time

Xxxx xxxxx xxxxxxxx xxx xxxxx xxxxxxxx xxx xxxxx xxxxxxxxxx

5.1.3 The best way

Xxxx xxxxx xxxxxxxx xxx xxxxx xxxxxxxx xxx xxxxx xxxxxxxx xxxxx xxxx xxxxxxxx xxx xxxxx xxxxxxx xxx xxxxx xxxxxxx xxx xxxxx xxxxxxx xxxxx xxxxxxxxxxxxx xxx xxxxx xxxxxxx xxx xxxxx xxxxxxx xxx xxxxx xxxx

5.2 DON'T READ THEM A PAPER

Xxxx xxxxx xxxxxxxx xxx xxxxx xxxxxxxx xxx xxxxx xxxxxxxx xxxxx xxxx xxxxxxxx xxx xxxxx xxxxxxx xxx xxxxx xxxxxxx xxx xxxxx xxxxxxx xxxxx xxxxxxxxxxxxx xxx xxxxx xxxxxxx xxx xxxxx xxxxxxx xxx xxxxx xxxx

What numbering system should you use? This one is very common:

I. There is no other animal that will suffer to the death to aid its master as will a dog.
  1.1 Other animals will run when danger nears
    1.1.1 The dog will remain
      1.1.1.1 Even though it might mean death

This one is probably simpler to use

I. There is no other animal that will suffer to the death to aid its master as will a dog.
  1. Other animals will run when danger nears
    a. The dog will remain
      i. Even though it might mean death

Any numbering system should reflect the actual divisions of thought in the piece of writing. Accordingly, you would not number the paragraphs in initial introductions, in concluding summaries, in linking comments, or in the introduction to subpoints.

Indented Display

Sometimes your document will be so short that neither headings nor decimal numbering would be appropriate to highlight the levels of your thinking. Nevertheless, you will still be dealing with groupings of ideas, and you will want to highlight them in some way.

Groups of points supporting or explaining an overall idea are always easier for the reader to absorb if they are set off so as to be easily distinguished as a group. Consider, for example, the two versions of the memorandum shown below.

I have scheduled a Creative Thinking session with Frank Griffith and the industrial engineers for the second week of September, and for Al Beam and his staff for the third week of September.

I think we need just a few slides to supplement the introduction, which is attached with suggested slide concepts. We also need slides of the Specific Examples of Positive Reinforcement language. These slides would be used as a wrap-up at the end of the presentation. This language should also be in printed form to be used as a handout.

Slides showing the results of innovation we have had, such as the slides that you made of the musical instruments, would be quite valuable for the Frank Griffith meeting for the second week, and they would be essential for the Al Beam meeting set for the third week of September.

We have purchased the film "Why Man Creates" to be used as part of the introduction of the program. Slides are also needed for the section on Innovation Environment Chart Traits.

This version is acceptably clear as it stands, but the approach used in the version below makes the points literally "jump out" at the reader.

I have scheduled a Creative Thinking session with Frank Griffith and the industrial engineers for the second week of September, and for Al Beam and his staff for the third week of September. For both these meetings I will need slides showing:

1. **The major points made in the introduction.** Suggested concepts are attached.
2. **Specific examples of positive reinforcement language.** These slides would be used as a wrap-up at the end of the presentation. This language should also be in printed form to be used as a handout.
3. **The results of innovation we have had,** such as the slides that you made of the musical instruments. These would be quite valuable for the Frank Griffith meeting, but essential for the Al Beam meeting.
4. **The steps needed to create an environment for innovation.**

In general, the major rule to remember when you set your ideas off in this way is that you want to be sure to express them in the *same grammatical form.* Not only does this usually save words and make the ideas easier to grasp, it also helps you to check whether you are saying clearly what you meant to say. In this instance, for example, arranging the ideas in this way shows up the fact that the author has not stated what kind of slides he wants for the section on the innovation environment (point 4).

Whether the memorandum is long or short, the visual arrangement of groups of ideas to set off their similarity to each other will also make them easier to comprehend. As with hierarchical headings, however, one set of indented groupings per memorandum is enough; otherwise the visual effect is lessened.

Dot-Dash Outlines

A variation on indented display is the dot-dash outline, or lap visual, generally used by consulting firms for progress reviews. These reviews are often given to a small group of client executives, sitting around a table, The group tends to go through the document together, reading one page at a time.

Again, the technique is to show ever-more subordinate ideas by placing them further to the right of the page, as shown in the box on the next page.

The rules here are much looser than for other forms, in that you do not adhere strictly to having at least two of every level point. The object is to get the main points out for the reader in a way that is easy to see, but that does not give too much information at one time, thus ensuring slow reading and full digestion and discussion of what is being said.

Format for Progress Reviews

1. In progress reviews, you sometimes set your ideas out differently under the major sides
   a. You do so when you will be present while the client is reading the document
      - And you wish to provoke discussion on the ideas being presented
        - So that you will have his immediate response to your findings
        - And that you will be able to carry on with your work in the direction intended
   b. You therefore put the ideas on the page in a way that will aid the client's reading process
      - You want him quickly to grasp the main points
      - You want him easily to see their relationship to each other
      - You want him clearly to distinguish the less essential points
2. To achieve the proper visual effect, you must obey certain rules
   a. Make short, direct statements at each level
      - Omitting grace notes
      - And liaisons
   b. Limit each level to one statement only
   c. Use parallel construction for ideas at the same level, where possible
   d. Ensure that ideas at each level relate directly to the level above them
      - Either explaining it
      - Or supporting it
3. Do not bother to use this format unless you intend to obey the rules

All of these devices serve as visual aids to the reader. They are meant to display to the reader's eye the logical relationships with which his mind is grappling, and in this way to help him comprehend them more quickly. Admittedly, they save only tiny amounts of the reader's time, but if he is a person who has scores of documents passing over his desk each day, the value of such small savings is considerable.

SHOW TRANSITIONS BETWEEN GROUPS

Once you have written your initial introduction and moved into the body of your document, you need to write a short introduction to each Key Line point. In longer documents, you should also pause periodically to let the reader know where you've been and where you next plan to go—at either the end or the beginning of each major grouping. In doing so, however, you want to make your progress from point to point seem smooth and nonmechanical. Thus, you don't want to say such things as:

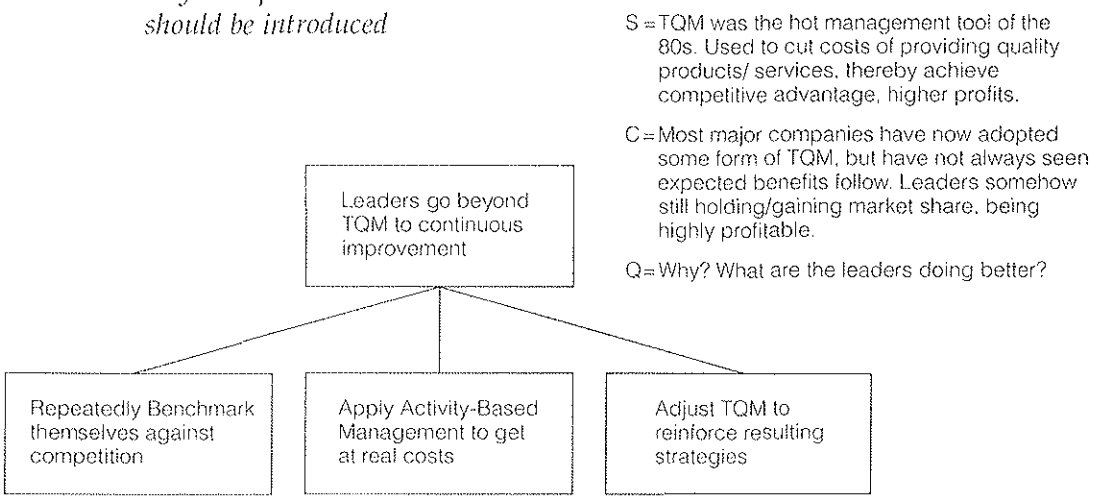
> This chapter has looked at the need for priorities. The next chapter looks at how these priorities should be set.

In other words, you do not want to relate what two chapters or sections *do*, you want to relate what they say—their major ideas. And you want to do it in such a way that you seem to be looking in two directions at once—back to what has been said and forward to what is to be said. In making this pause at the beginning of a chapter, section, or subsection, you can use the technique either of telling a story or of referencing backward. And if the chapters or sections are long ones, you will also want to pause at the end and make a summary before going on.

Telling a Story

A graceful way of bringing the reader into each of your Key Line points is to tell him another Situation-Complication-Question story that will lead naturally to the Key

Exhibit 59 *Key Line points should be introduced*



Line point as the Answer. You will recall that this is the same technique we looked at in Chapter 4, with the paper on Total Quality Management (Exhibit 59).

Below are the headings and introductory stories the speaker might use to lead the audience to each new point.

BENCHMARKING

First, Benchmarking. Let's say you are a bank and have launched a truly effective TQM effort. And let's say it has enabled you, for example, to cut loan applications from 2 days to 2 hours. You are likely to assume that such a big reduction is enough to ensure competitive advantage. Unfortunately, you can't tell whether that is indeed the case until you compare yourself with your competition, and this is where a formal Benchmarking exercise becomes imperative.

ACTIVITY-BASED MANAGEMENT

All right, you have been through a formal Benchmarking assessment, and it shows that you are the best in the industry, and everybody else is measuring himself against you. Now, surely, you have the right to be proud of your company. Indeed you do, provided that the actual return from offering your products and services is worth the real cost incurred to supply them. The only way to determine that what you are the best at is worth doing is to analyze those costs by activity rather than by function. And here is where Activity-Based Management comes into play.

TOTAL QUALITY MANAGEMENT

Well, you've now gone out and Benchmarked yourself, you've adopted Activity-Based Management as your mantra, and you may even have achieved competitive advantage. Can you now relax and feel confident about the way you are running your company? Not if you are still operating the same old Total Quality Management process we began this journey with. Because now the question is, Will you be able to hang on to your competitive advantage? The answer is probably not, unless you bring your TQM processes in line with your current approaches. What does that mean you will have to do differently?

In each case you can see that we followed the Situation-Complication-Question form of the initial introduction at the beginning of the document, but reduced its scope to match where the reader was standing as you begin each new story. Regardless of where the introductory story lies, it should always contain only information that the reader already knows or will agree with you is true.

Referencing Backward

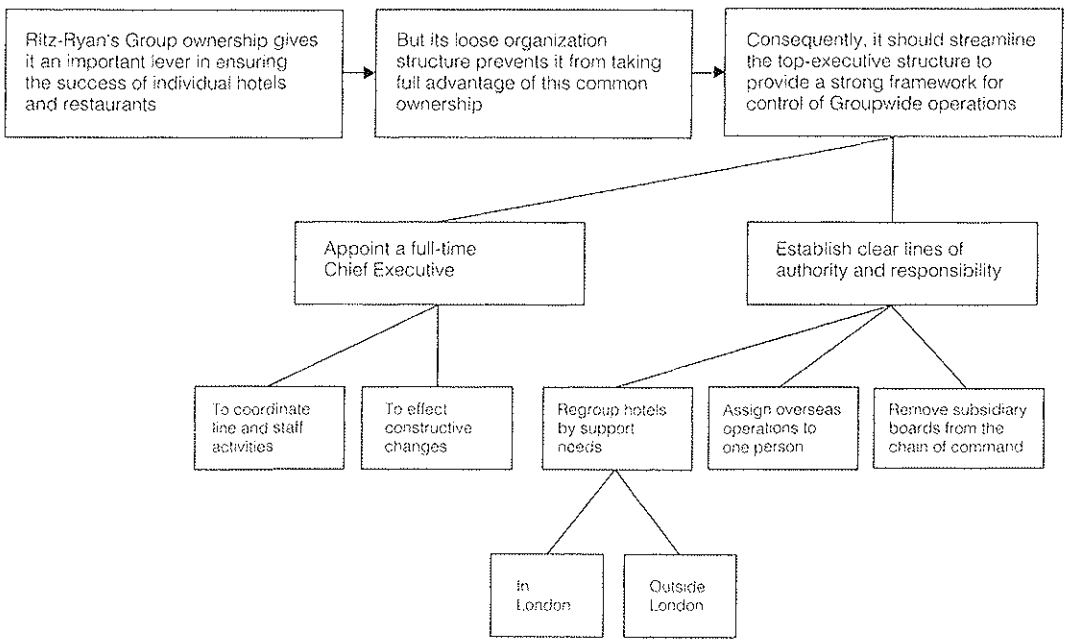
The technique of referencing backward consists simply of picking up a word or a phrase or the main idea of the preceding portion of the pyramid that you are linking, and using it in your opening sentence. You are probably familiar with the technique in transitions between paragraphs. For example:

> No single executive has full-time responsibility for directing Group affairs. The absence of necessary leadership and coordination for senior operating and staff executive results in . . . (list of problems).

> The problems stemming from *lack of full-time leadership* are compounded by overlapping or unwieldy responsibility assignments . . .

You follow precisely the same technique at the beginning of a new section, a new subsection, or sometimes a new set of support points. Suppose you had just finished a section telling the Ritz-Ryan hotel chain that it was not taking full advantage of its common ownership of many hotel, restaurant, and catering operations. You are about to start a new section outlining the structural weaknesses that keep it from being able to act as it should, and you have a pyramid like that shown in Exhibit 60.

Exhibit 60 *Sections should be linked verbally*



Your linkings, referencing backward, might read as follows:

Between the first two sections

The current top executive and board structure suffers from two major shortcomings that severely limit the degree to which Ritz-Ryan can take advantage of its combined resources.

Between the two subsections

In addition to appointing a Group Managing Director, Ritz-Ryan should

> make a number of changes in the executive structure to establish short, clear lines of authority and responsibility.
>
> **Between the two support points**
>
> Just as only a full-time Chief Executive can coordinate line and staff activities effectively, so only a full-time Chief Executive can provide the steady, strong, and relentless pressure needed to bring about improvements throughout the organization.

I'm sure you see the technique. The point is to make the transitions unobtrusive yet clear, primarily through picking up the key word or phrase and carrying it forward. You are, of course, carrying it forward to connect with the major point of the next section, which has already been introduced briefly in the "explanation" part of your original introduction. Thus, here you need not lead up to it with a "story" as you did previously, since your reader now presumably has as much information as he needs to understand the points. You do, however, need to introduce the grouping of ideas to come under each section, and explain how they support its major point.

Summarizing Sections

Sometimes a chapter or section will be extremely long or complicated, in which case you will want to stop and summarize completely before going on. An example of doing this is at the end of the first section of Chapter 4, on page 48, where the conclusions about introductions are summarized.

Here is the summary that appeared at the end of the Ritz-Ryan chapter we have just been discussing.

> In summary, the top-level executive structure recommended in this chapter consists of the Ritz-Ryan Board and Chairman, a Group Managing Director, and three key executives reporting to him, each in charge of one of the Group's major businesses. These positions and reporting relationships provide a strong framework for long-term leadership and control of Groupwide operations. Only by streamlining the structure to provide this degree of control and accountability can the Group realize the improvement opportunities identified elsewhere in this report.

Concluding summaries of this sort are not difficult to write if you keep in mind that they are meant to restate, as adroitly as possible, the principal matter and tone of the preceding text. Since you already have these in front of you in your pyramid, all you are doing is pulling them together again for the reader.

Making Full Conclusions

Theoretically, if you write a proper introduction and structure the body of your document to obey the pyramid rules, you should not need a concluding statement. You have, after all, clearly stated your reader's question at the beginning and answered it fully with impeccable logic. Nevertheless, you may feel a psychological need to end

gracefully rather than simply to stop writing. The tendency to end short memos by saying, "If you have any further questions, please do not hesitate to call," no doubt reflects this need.

The obvious, perhaps too obvious, procedure at the end of a longer document is to signal the end by putting a line of asterisks in the middle of the page, which is sometimes called a "sunset." You then begin your last paragraph with the words, "In conclusion. . ." and remind the reader of your main point. However, if you favor this approach, you want to avoid merely making a lame restatement of what you have already made abundantly clear:

> This report has outlined our recommendations for reorganizing the company and spelled out the specific steps each department must take to bring it about.

Rather, you want to find a compelling set of words that not only sums up for the reader what you have been saying, but also produces an appropriate emotion in him about it. At least, that is Aristotle's advice about what to do in a conclusion.

That there is an "appropriate emotion" for the end of a business document may be open to question, but I should think the major feeling you want to leave with your reader is that of a need and desire to act. Consequently, you want to give him some indication of what he is to think about or is able to do with the new knowledge he now possesses as a result of his reading.

This indication can take the form of either a philosophical insight or a prescription for immediate action. Abraham Lincoln, in his second inaugural address, managed to do both:

> With malice towards none, with charity for all, with firmness in the right, as God gives us to see the right, let us strive on to finish the work we are in—to bind up the nation's wounds—to care for him who shall have borne the battle, and for his widow and his orphan—to do all which may achieve and cherish a just and lasting peace among ourselves and with all nations.

You will, of course, want to be as subtle and restrained as your subject and your reader demand, so that what is an appropriate ending will vary with each document. An airline president, for example, would probably be offended by strongly emotional statements when being urged to adopt a new planning system. But on a subject on which he already feels strongly, such as reregulation of his industry, he would surely be wide open to emotional appeals.

In general, however, if you insist on appending a conclusion, you will want to write something that puts into perspective the significance of your message. Here, for example, is the concluding paragraph of a report whose message was that it is technically possible to create a European-wide system for rapid retrieval of technical literature by computer.

> "If you succeed in launching the system, you will not just have created the means for improved access to scientific and technical information in Europe by users in industry, commerce, the professions, and academia. You will also

> have created a common market for information, one that makes available the full range of existing sources, not just national collections, to all users. This could lead not only to advances in standardization and harmonization, but also to the development of totally new standards. We find the prospect exciting, and are eager to work with you in launching the pilot project."

Stating Next Steps

As you may have gathered from my tone, I do not encourage most people to write concluding paragraphs because they are so difficult to do well. Simple pragmatism dictates that you do without. However, there is an occasion on which you will definitely need a concluding section, and that is when you are dealing with actions you want the reader to take in the immediate future.

The need to state Next Steps often arises when you write a long document that recommends a course of action that you think the reader is likely to take. If he takes it, there are some things he ought to do Monday morning to get things in motion. To house these activities, you create a section called Next Steps. The only rule is that what you put in this section must be things that the reader will not question. That is, the actions must be logically obvious ones.

For example, suppose you are recommending that the client buy a company, and after 30 pages of brilliant prose and analysis explaining why you think it is a good idea, you are confident that he is going to do so. You then create a heading called Next Steps and say something like

> If you think buying this company is a good idea, then you should:
>
> 1. Call the man who owns it and ask him to lunch
> 2. Call the bank to make sure the money for purchase will be available when you need it
> 3. Reconvene the Acquisitions Committee to handle the administrative details.

Clearly your reader is not going to say to you, "Why do I ask him to lunch, why can't I ask him to dinner?" These are self-evident points, and can be accepted without demur. If, on the other hand, they were points that did raise questions in his mind, then you would have to include them in the body of your text, and make certain they fit horizontally and vertically with everything else you're saying.

In all of this positioning, the intention is to make the job of thinking required of the reader as easy as possible. He is, after all, rarely trained in analysis and reflection, and can have nowhere near the understanding of the subject you have,

even if the subject is his own company. He is not your peer in interpreting your thinking on the subject.

Thus, you must expect that his mind will not be precisely where you want it to be in terms of understanding, as you finish one lengthy group of points and prepare to go on to the next. The various transition devices are meant to grab his mind, as it were, and pull it back to where it belongs if he is to comprehend what you are trying to say. This is essentially an exercise in good manners, provided it is done gracefully and only where needed.

11
REFLECTING THE PYRAMID ON A SCREEN

Given a choice, most people would elect to present the ideas in their pyramid orally, rather than as written prose. At the back of their minds lies the assumption that a visual presentation is simply a report in slide form. Thus, they see the job as one of translating the pyramid into clean text slides, perhaps supported by a few exhibits, which they will stand up and explain. Would that it were so.

The trouble is that a visual presentation is given to a live audience, often seated in less than totally comfortable surroundings, and usually wishing it were elsewhere. This audience is not only capable of unpredictable responses, it is totally open to any distraction. Thus a big part of your job is to ensure that you anticipate their

responses, keep their attention, and make them eager to take in your message. In other words, you have to entertain them. And entertaining an audience for a business presentation demands much the same kind of artistry as any other form of entertainment.

You need to produce a "show," and a show requires a star, a script, a storyboard, technically excellent visual elements, and consideration of such intangibles as timing, pacing, and suspense. Suddenly you need a whole set of skills that go way beyond a "report in slide form." Nevertheless, the typical slide produced for a business presentation tends to look something like that shown in the box below.

GUIDING PRINCIPLES

These guiding principles have driven the design of a new Professional Health Care Sector supply chain vision

1. The supply chain should be designed to maximize delivery of end user customer satisfaction at an acceptable cost to the Professional Sector
2. The supply chain reengineering work should be future oriented . . . the impact of health care policies and provider/payer responses must be considered in any new vision and/or supply chain process designs
3. The supply chain design needs to recognize the unique characteristics of Professional Sector products
4. Processes must be designed to provide financial accountability and service measurement to all process stakeholders
5. Roles and responsibilities for managing supply chain activities should reside with the supply chain participants where they can be performed most effectively and efficiently
6. Activities that are common and undifferentiated across the sector and for which consolidation provides significant cost leverage while maintaining quality service should be consolidated to one entity
7. Activities that are unique and differentiated by company and for which decentralization of cost can be leveraged and quality insured should be maintained by the individual Sector companies

To begin with, we can see that this is a list rather than a set of related ideas summarized clearly with an insight. And seven of anything is too many. But armed with 50 or 60 slides of this type, the presenter then reads each word of each slide to the audience, boring it to death in the process. Or worse, the speaker changes the words from the way they appear on the screen, creating mass confusion.

What we have here is not a visual presentation, but a "visual recitation" as Gene Zelazny the guru of slide design puts it. The authors of the slides, however, defend it by pointing out "This way we don't forget anything" and "We have a handout at the end of the presentation."

Equipping business presenters with the skills to be effective entertainers requires hard work and serious training in public speaking and audience handling. And indeed many firms offer their employees courses in these areas. But anybody responsible for designing a business presentation should be aware of and able to execute the basic minimum required to keep the attention of a business audience:

- Text slides that contain only the most significant ideas, properly grouped and summarized, and stated as briefly as possible
- Supported by clear exhibits (charts, tables, or diagrams)
- Reflecting a well-thought-out storyboard and script.

You use two kinds of slides in a presentation—text and exhibits (charts, tables, or diagrams)—ideally with a ratio of 90% exhibits to 10% text. Their roles are:

1. To clarify the structure of the presentation (text slide)
2. To emphasize important thought groups, such as conclusions, recommendations or next steps (text slide)
3. To demonstrate relationships that can't readily be made clear with words alone (exhibit).

I am not going to attempt to explain in this chapter the intricacies of designing proper slides and giving an effective presentation. But I will refer you to Gene Zelazny's fine book *Say it with Charts**, to which I am indebted for most of the insights in this chapter. (Gene has been for many years Director of Visual Communications for McKinsey & Company in New York.) And I will pass on some of the rules that Gene has developed for designing text slides and exhibits. I will also explain the approach I go through to move from the pyramid to a storyboard/script in designing slides for a presentation.

* Gene Zelazny. *Say it with Charts*, Irwin Professional Publishing: Burn Ridge, IL 60521, 1988 and 1996.

DESIGNING TEXT SLIDES

An important point to recognize in designing text slides for a live presentation is that the star of the show is YOU, the speaker, with your message. The most interesting thing in the room is always you, not the slides. The slides are merely

visual *aids*, and their function is primarily to keep the presentation moving. Thus you want to make a clear distinction between what you say aloud and what you show on the screen.

What You Say

To illustrate the difference, here is a portion of a script with its matching slide—an example of the first kind of text slide mentioned above:

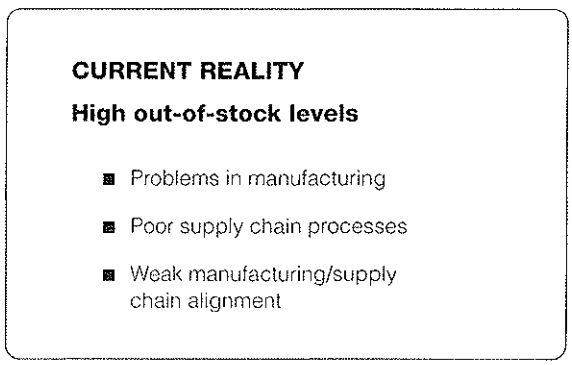
Script

CURRENT REALITY

Jackson Foods has been experiencing extremely high out-of-stock levels. Inevitably, in the PMG business, an inability to fully supply orders will result in a loss of market share.

- The out-of-stock situation has partially been due to manufacturing problems
- The manufacturing problems are compounded by inconsistent or inappropriately managed supply chain processes
- The supply chain and manufacturing processes are not "aligned" to alleviate out-of-stock problems or ensure a focus on priority customers and products

Slide



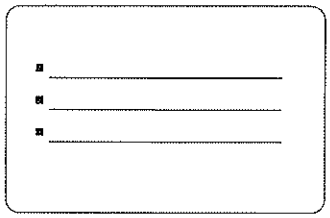
The best text slides convey their message as starkly and simply as possible. They do not waste words (or slides) on transitional or introductory points, which can and should be stated orally. This means of course that the slides by themselves will not be intelligible as a handout to someone who has not attended the presentation. To get around this problem, some people bind the slides with the text of the script on the facing page—an approach that effectively kills two birds with one stone. But in that case the script should be written in outline form, with transitions omitted.

Keep in mind also that text slides are best limited to emphasizing the major points in the pyramid, approximately as shown in Exhibit 61.

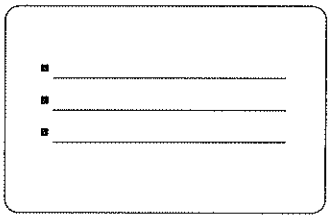
Exhibit 61 *Use slides to emphasize the major points in the Pyramid*

Slides reflect the pyramid roughly as follows:

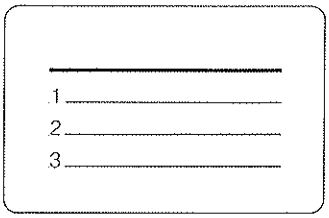
Situation points



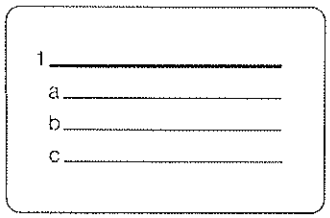
Complication points



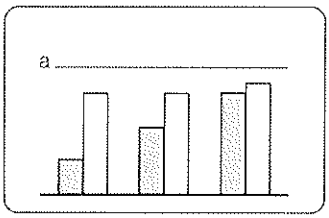
Main Point and Key Line points



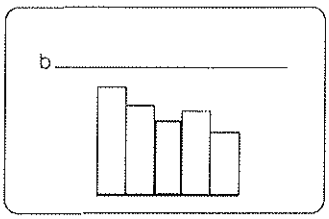
First Key Line point + support points



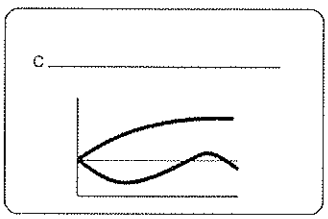
First support point as sentence over a graphic or set of graphics



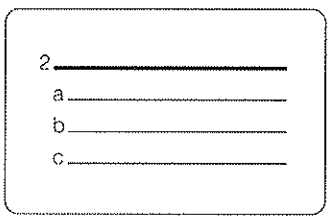
Second support points as sentence over a graphic or set of graphics



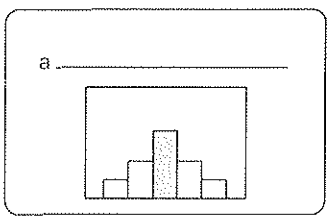
Third support point as sentence plus graphic or set of graphics



Second Key Line point + support points



Next support point as sentence over graphic or set of graphics



What You Show

In deciding what to put on individual text slides, you will want to keep these guidelines in mind:

1. *Present and support one idea at a time.* The exception to this rule occurs only when you wish to enumerate a set of points, as in a summary or list of points to be developed more fully in subsequent slides.

2. *Use statements not captions.* You usually have a choice between using a word or two to telegraph the idea or presenting a brief statement of the idea:

Sales outlook vs Sales outlook is favorable

The latter form leaves no room for the audience to make a wrong assumption about the essence of the point you are making.

3. *Keep the text brief.* Try to put no more than about 6 lines or roughly 30 words on a single slide. If an idea involves more text than this, think about using more slides.

4. *Use simple words and numbers.* Long words, technical terms and complicated phrases distract the viewer and divert his attention from you, the speaker. You should also keep numbers as simple as possible: $4.9 million is easier to grasp than $4,876,987.

5. *Make the type-size readable.* The number 32 is a dependable guideline here.

If you know the distance from the display for the farthest viewer, divide this distance (feet) by 32 to get the smallest legible letter size (inches). Thus, 16 feet divided by 32=0.5 inches. The letter must be ½ inch high on the screen to be seen 16 feet away.

If you know the letter size to be used on the display, multiply the size (inches) by 32 to get the farthest distance (feet) at which the letters will be legible. Thus, 0.75 inches multiplied by 32=24 feet. Lettering ¾ inch high will not be visible beyond 24 feet.

The only time I think it permissible to use an illegible slide is when you deliberately want to demonstrate the complexity of a situation. In that case, admit it, so that the audience does not automatically try to read the words. I should note, however, that Gene disagrees with me on this. He says:

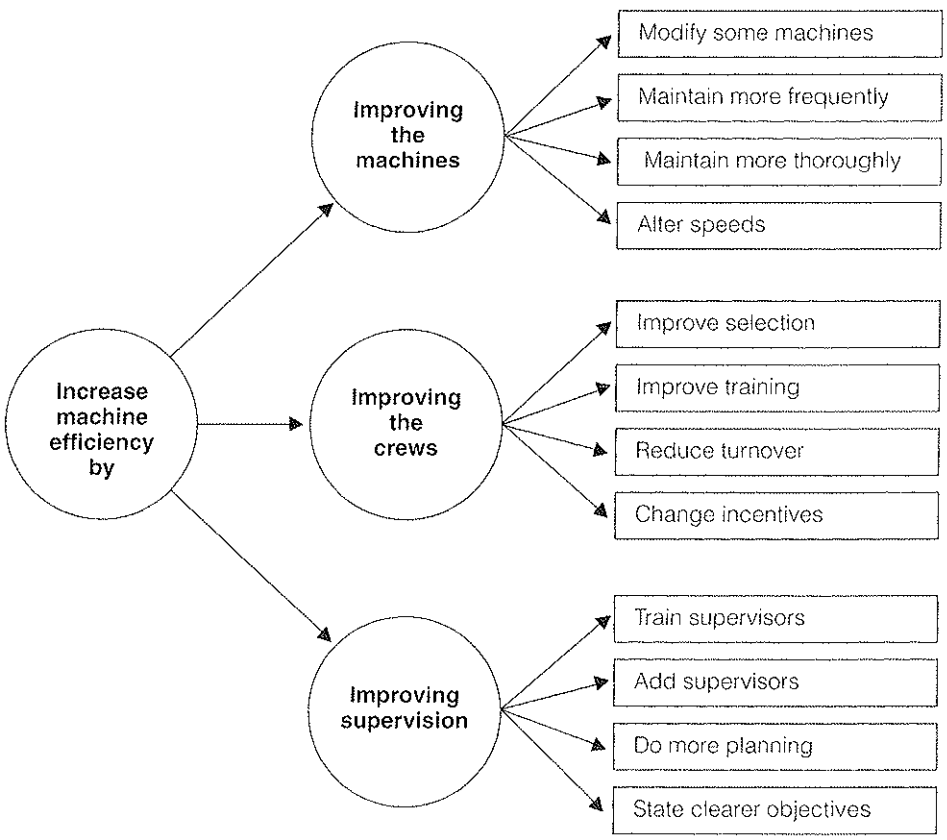
> I'm not comfortable admitting to the audience that the slide is not legible and that they shouldn't attempt to read it; that's a cop-out. If it's important enough to put on the screen, then it's important to have it be legible. Furthermore, equating complexity with making a slide illegible is an inelegant way of demonstrating complexity. Give me the charter to make it legible, and I'll succeed 98% of the time. For the other 2%, you shouldn't be using the visual.

6. *Design the slides to be interesting to look at.* Interest is heightened by layout, selection of type, and use of color. One of Gene's most interesting techniques is to "put the text slide to work." Since all text slides have a tendency to look alike, a series of them can become boring. But if you think of a text slide as an exhibit that uses words rather than data or charts, then you can design the slide to be more visually interesting by showing the relationships among the thoughts being discussed. Exhibit 62 illustrates what he means.

7. Use "build" slides to heighten interest. Another technique for heightening interest, or for dealing with complexity, is to show the parts of a slide one by one. In this way you can explain it as you go along, so that sight of the full slide does not appear overwhelming. Exhibit 62, for example, might lend itself to this approach. You could show the first circle alone, then add the next three circles, then add the boxes.

Exhibit 62 *Design text slides to be visually interesting*

Three main avenues are possible to increase machine efficiency



DESIGNING EXHIBIT SLIDES

Text slides use a familiar medium of communication—words. But exhibit slides (charts, graphs, tables, and diagrams) employ a wholly different means of communication—visual relationships. They enable you to present to your audience masses of data and complex relationships that you cannot convey as effectively by words alone.

In general, exhibit slides should convey their message as simply and readably as possible. The viewer will not have the opportunity to study them and figure out what the various elements mean. And if the chart or graph is too complicated, detailed, or cluttered, you will waste precious time explaining it rather than discussing its message. This does not rule out the occasional, more complex diagram or chart that becomes clear as the speaker develops the ideas. But you would not want more than one or two of these to a presentation.

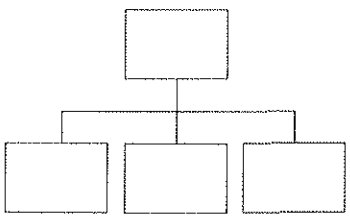
Exhibit slides generally show the parts of a structure or process, or display data in a visual way, using charts formed into pies, bars, columns, curves, or dots. The diagrams and charts tend to be used to answer five kinds of question (Exhibits 63-67):

- ¶ What are the elements?
- ¶ How do amounts compare
  - to the whole?
  - to each other?
  - over time?
- ¶ What has/how has it changed?
- ¶ How are items distributed?
- ¶ How do items co-relate?

The trick is to decide the question you want the exhibit to answer, state the answer as the title to the chart, and then choose the chart form most appropriate to showing that point.

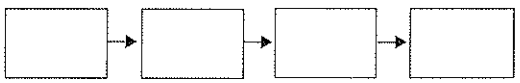
Exhibit 63 *What are the elements?*

A regional organization permits easier delegation



ORGANIZATION

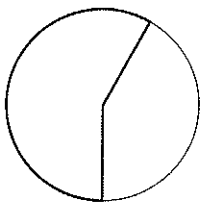
Jackson Foods operates a standard supply chain



PROCESS

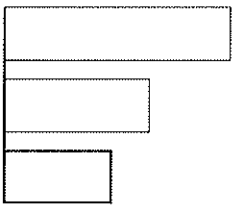
Exhibit 64 *How do amounts compare . . .*

Western Region accounts for almost half the sales



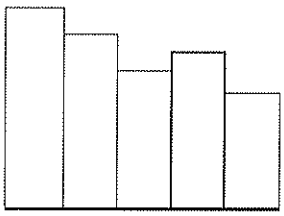
. . . to the whole?

Canned goods yield the lowest profits



. . . to each other?

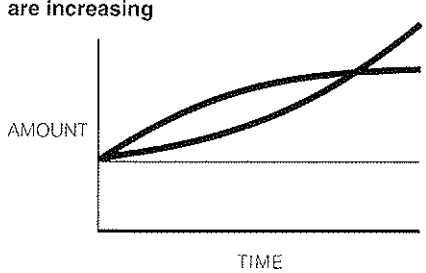
Costs have dropped in every year but one



. . . over time?

Exhibit 65 *What has/how has it changed?*

Sales have plateaued, but costs are increasing



Competition has closed the gap

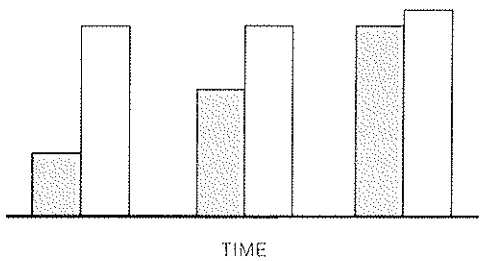
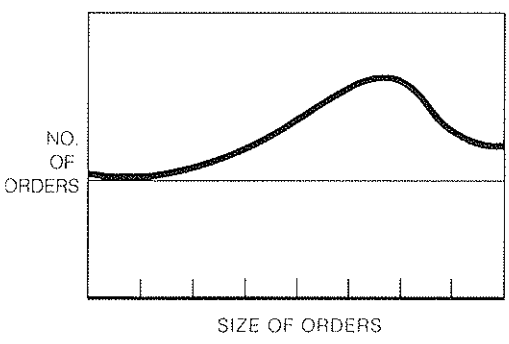


Exhibit 66 *How are items distributed?*

Most orders are over $1000



The majority of orders are placed mid-month

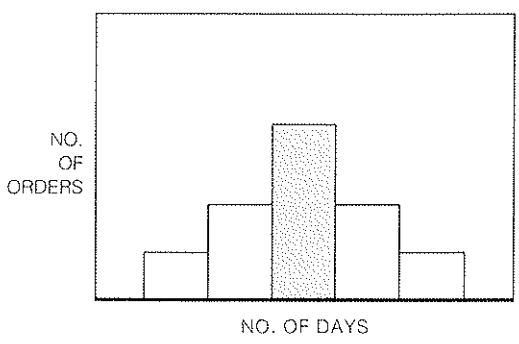
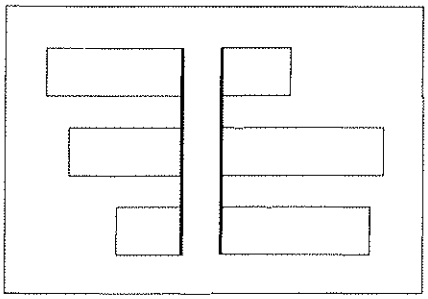


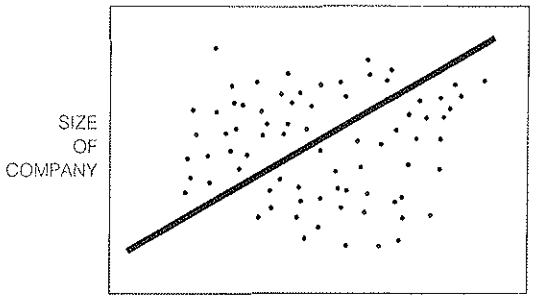
Exhibit 67 *How do items co-relate?*

Cost increases do not appear to reflect increased overtime



COST OVERTIME

No apparent relationship exists between size of company and size of order placed



NO. OF ORDERS PLACED

Do make sure that the title to a chart or diagram directly conveys its message, either as a full sentence or as a phrase that contains a verb. Doing so allows you to check that the visual impression the chart gives the viewer is consistent with the message you wish to convey. "Share of profits by region," contains much less information than "Western Region accounts for almost half the profits."

Stating the point of the chart also minimizes the possibility of confusion. Different viewers, left to themselves, will focus on different relationships depending upon their point of view, their background, or their interest. This way you focus them instantly on the aspect of the data you wish to emphasize.

STORYBOARDING

Once you understand the requirements of text and exhibit slides, you are ready to design the full presentation. The approach that I take to moving from the pyramid to a presentation is as follows:

1. *Write the introduction in full,* putting down every word you will say in the order in which you will say it. This ensures that you have left nothing out of your beginning story, and allows you to double check that the question you are answering is really valid for the audience.

2. *Have available a blank storyboard form,* and write across the top of each blank slide the points from the introduction you wish to illustrate visually, plus those from the Key Line and one level below the Key Line.

3. *Rough out the visual* way you will illustrate each point. Generally you do this without real numbers, but simply with an indication of the types of data you would include, plus notes to yourself and the designer of the sort of relationship you want to show.

4. *Script the words* to be said around each slide, to ensure the set of slides flows as a story.

5. *Complete the design* of the slides and send them off to be properly drawn.

6. *Rehearse,* rehearse, rehearse!

A storyboard at its simplest is a sheet of paper turned sideways and divided into separate sections, each of which represents a blank slide. It enables you to write down the specific points that you expect to turn into slides, and to indicate which should be presented as text slides and which should be illustrated with a graphic of some sort.

To illustrate, Exhibit 68 shows a typical pyramid, while Exhibit 69 shows how the first few slides might have looked in storyboard form. The thing to remember is that you want each slide to have a sentence or phrase at the top that conveys the point it is meant to illustrate. This device will act as a reminder both to you as you present and to the audience as it listens, particularly if you have the slide on the screen for any length of time.

Exhibit 68 *Begin with the pyramid*

S = Jackson Foods' supply chain costs $12m a year to operate, or 14% of NPS. High, inefficient compared to others. High stock-outs, poor on-time delivery and order completeness, large backorders and credits.

C = Have taken steps to improve supply chain costs/delivery by changing terms of trade to increase orders. Has made little difference to cost, efficiency. Concerned for impact on financial performance.

Q = What to do to ensure financial performance?

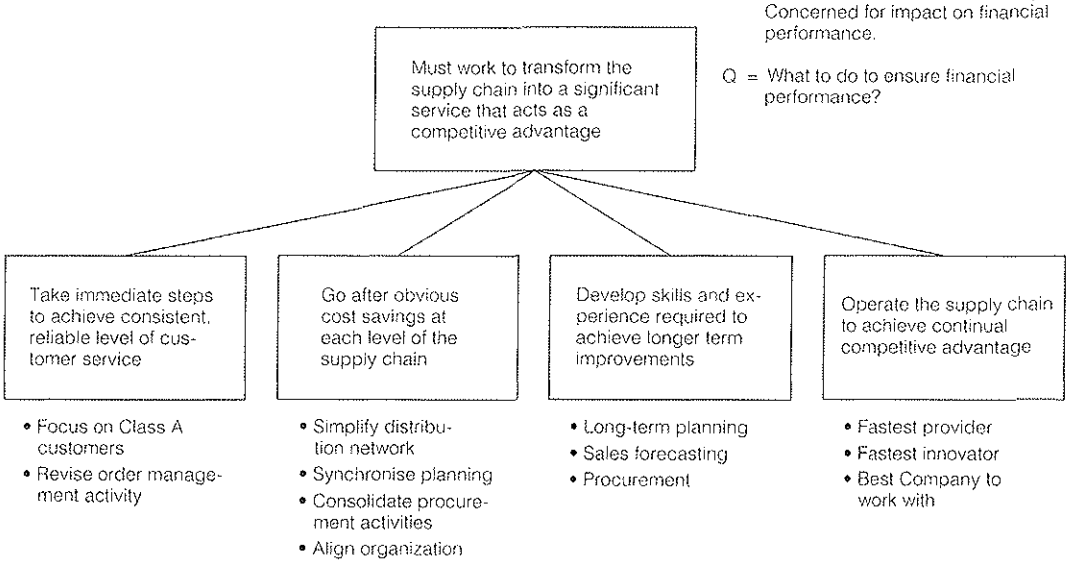
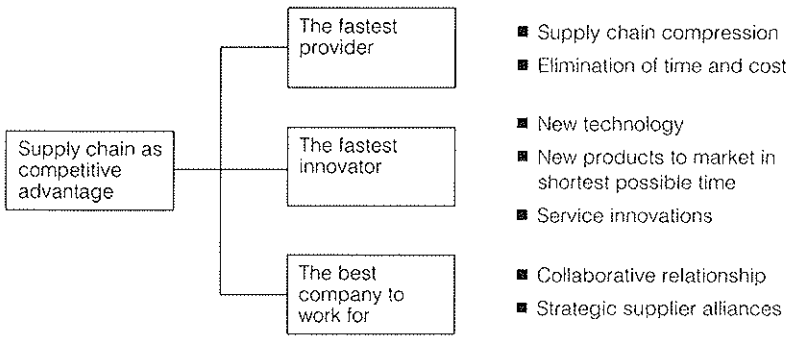


Exhibit 69 *Storyboard the introduction, Key Line, and next level*

1 **Current Reality:** High costs, low levels of customer service ■ Problems in manufacturing ■ Poor supply chain processes ■ Weak manufacturing/supply chain alignment	2 **Improvements to date:** Ineffective ■ Bottlenecks from small orders ■ Long order processing times ■ Complex distribution network ■ Inaccurate forecasts
3 **Strategy** Transform the supply chain into a significant source of competitive advantage	4 **First, stabilise the supply chain** ■ Achieve a consistent, reliable level of customer service ■ Reduce total suppy chain costs ■ Develop the skills and experience necessary to achieve longer term improvement

5

Then launch projects to ensure continuous improvement in performance



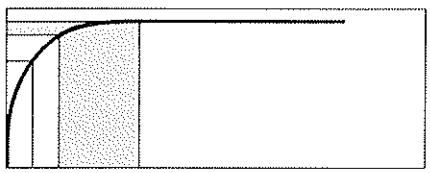
6

Achieve a consistent, reliable level of customer service

- Focus on Class A customers
- Revise order management activity

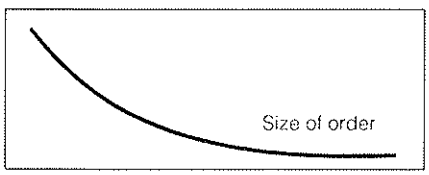
7

50% of customers account for +95% of orders by value



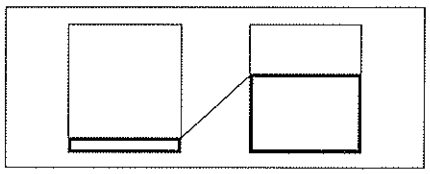
8

Many low-volume orders



9

10% of products account for 60% of value of orders



10–17

Etc. . . .

18

Achieve a consistent, reliable level of customer service

- Focus on Class A customers
- Revise order management activity

This chapter has discussed only the general steps for converting the points in a pyramid into visual presentation form. It has come nowhere near covering the detailed planning and analysis necessary to make the presentation compelling and effective for your purposes. To this end, let me recommend a wonderful book by Antony Jay called *Effective Presentation: The Communication of Ideas by Words and Visual Aids,* published in London in 1970 by Management Publications Ltd. (It was also published in the States as *The New Oratory.*)*

The book thoroughly sets out how to think about your audience, staging, presentation techniques, and rehearsal. The book is full of all sorts of insights. My favorite is "A presentation is usually a favour bestowed by those who attend on those who present." It is worth keeping in mind.

* Antony Jay, *Effective Presentation: The Communication of Ideas by Words and Visual Aids,* London, Management Publications Limited, 1970.

12 REFLECTING THE PYRAMID IN PROSE

You will recall I said at the very beginning of this book that writing anything clearly consists of two steps: first decide the point you want to make, then put it into words. Once you have worked out your pyramid structure and rechecked the thinking in your groupings, you know exactly the points you want to make. You also know the order in which you want to make them. All that remains is for you to put them into words.

In theory this should be a relatively easy task. One ought to be able to expect the normal business writer to translate his pyramided points into a series of concise, graceful sentences and paragraphs that clearly convey a lively message and capture the reader's interest. Alas, it does not always happen. The average sentence, far from being concise and graceful, is long-winded and heavy with jargon. This makes the paragraphs seem impenetrable and the subject endlessly boring. Let me give you a sampling:

¶ A primary area of potential improvement is improving cost-effectiveness of field sales-force deployment (and organization) to reflect the need for redefined selling missions at store and indirect levels dictated by changes in the trade environment.

¶ Preplanned adjustments may be developed from the alternative preliminary plans submitted by the Group and be in the form of outlines of contingency plans and prioritized guides to adjustments in special programs and other discretionary expenditures.

> ¶ Current needs for accurate cash flow analyses are particularly demanding upon the existing system; it is not prepared to meet the stringent accuracy requirements. Improvements are available through incorporating information not adequately considered in making projections.

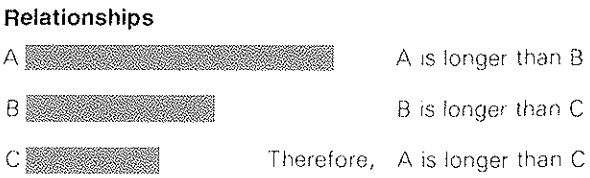
These passages were produced by bright, articulate people with excellent problem-solving skills. Any one of them can explain his ideas orally and be completely comprehensible. But they appear to believe that, in writing, the more dehydrated the style and the more technical the jargon, the more respect it will command.

This is nonsense. Good ideas ought not to be dressed up in bad prose. Works on technical subjects can at the same time be works of literary art, as the William Jameses, the Freuds, the Whiteheads, the Russells, and the Bronowskis of the world have proved. Of course technical communications addressed to specialists must employ technical language. But overloading it with jargon and employing a tortuous and cramped style is largely a matter of fashion, not of necessity.

Your objective should be to dress your ideas in a prose that will not only communicate them clearly, but also give people pleasure in the process of absorbing them. This, of course, is advice that every book on writing gives, and if it were easy to do, everyone would be doing it. It is not easy to do, but there is a technique that can help. What it primarily requires is that you consciously visualize the images you used in thinking up your ideas originally.

As must be obvious by now, I believe we do all our conceptual thinking in images rather than in words. It is more efficient to do so. An image can take a great mass of facts and synthesize them into a single abstract configuration. Given a person's inability to think about more than seven or eight items at one time, being able to compress the world in this way is a great convenience. Without it you would be limited to taking decisions on the basis of a few low-level facts.

But bring together instead seven or eight of these abstract concepts, and you have in front of you an enormous amount of complex detail that you can easily manipulate mentally. Look, for example, at how much more quickly you can grasp the relationships of these three lines to each other from the image than you can from the words:



To compose clear sentences, then, you must begin by "seeing" what you are talking about. Once you have the image, you simply copy it into words. The reader, in turn, will re-create this image from your words, thereby not only grasping your thinking but also enjoying the exercise.

Let me demonstrate this process, first by showing how easily images appear when you are reading well-written prose, and then by giving you some hints on how to find the images lurking in bad prose so that you can rewrite it.

CREATE THE IMAGE

Here is a passage from Thoreau's *Walden*. As you read it, try to keep track of what's going on in your mind.

> Near the end of March 1845 I borrowed an axe and went down to the woods by Walden Pond, nearest to where I intended to build my house, and began to cut down some tall, arrowy white pines, still in their youth, for timber . . . It was a pleasant hillside where I worked, covered with pine woods, through which I looked out on the pond, and a small open field in the woods where pines and hickories were springing up. The ice in the pond was not yet dissolved, though there were some open spaces, and it was all dark-colored and saturated with water.

As you took in the words, did you not build up a sort of mental picture in your mind, to which you added details as you took in successive phrases and sentences? What you were building was an image, but not a photographic image. Rather it is what George Miller, to whom I am indebted for this example,* calls a "memory image," and it grows piecemeal as you go along.

If you read it as I did, first you see that it's March 1845, so that perhaps you have a feeling of a gray day in the past. Then you see one person borrow an axe from a second person, both indistinct, and you see him walking toward the woods, axe in hand. The trees turn into white pines, and you see Thoreau chopping at them. The next sentence introduces a hillside, so that suddenly the trees are on a hill. Then you see Thoreau stand up straight and look across at the pond, the open field, and the ice.

Your experience may or may not have been exactly like that. The point is, however, that you were *constructing the passage* as you read. The result of this constructive activity is a memory image that summarizes the information presented. You construct the image as part of the process of understanding, and the image then helps you to remember what you have read.

* From "Images and Models, Similes and Metaphors," in *Metaphor and Thought*, Andrew Ortony, editor. Cambridge University Press, 1979.

If you put the book down and try to remember what you read, you will probably find that you can't repeat it verbatim. But if you recall the image you can read off from it what you see, and it will be roughly equivalent to the original.

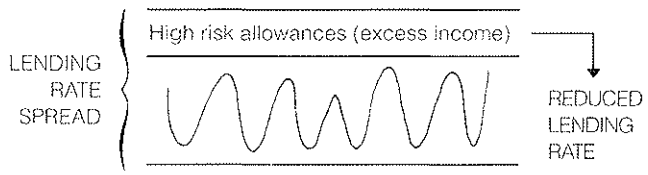
That images help to increase recall has been proven in memory studies, although these studies also show that people forget some details and embellish others, depending on their emotional predilections. Nevertheless, the memory image does provide a record of the passage and of the information extracted from it—a record that the reader constructs as he reads, phrase by phrase.

This is the kind of thing that must happen every time you read anything if you are to comprehend and remember it. Some passages are more difficult to visualize than others, and if the ideas being presented are particularly abstract, it may be that you will represent them with skeletal structures rather than with images. But unless the passage can be visualized in some form, unless the reader can actually "see" what is being said, he cannot be considered to have understood it.

To demonstrate, here is a passage from a document that debated whether the International Bank for Reconstruction and Development should change from a fixed lending rate to a floating one.

> If the risk allowances provided in the lending rate spread turn out to be too high, the Bank's income will be returned to borrowers as a group through a reduction in the lending rate in subsequent periods. Thus, fixed rate lending would involve extra costs for borrowers as a group only if the Bank were systematically to overestimate risks and thereby earn "excess" income more or less permanently. This possibility seems remote.

Although the concepts discussed are fairly abstract, words like "spread," "excess," and "reduction" permit you to visualize a clear set of relationships. If asked to draw them, you could do so with no more than four lines and two arrows, perhaps like this. (I have added the words, but you would not need to do so for yourself.)



This skeletal nature of the image is important to note. One does not want a complete, detailed photographic reproduction, but only a sense of the structure of the relationships being discussed. These will generally consist of one or more geometric forms (e.g., circle, straight line, oval, rectangle), arranged in a schematized or sketchy fashion, plus something like an arrow to indicate direction and interaction.

It may seem almost childish as you look at it. But all the great "visual thinkers" of the past who have talked about it, from Einstein on down, have emphasized this vague, hazy, abstract nature of their conscious visual imagery.

COPY THE IMAGE IN WORDS

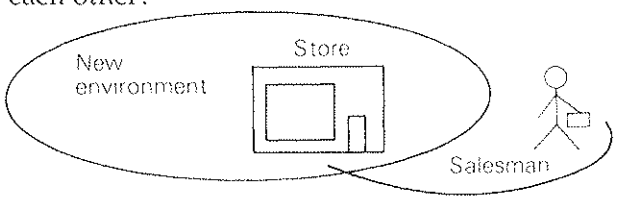
Using just these basics to create images can make a very great difference to rewriting bad prose. Let me demonstrate this using the first example on page 203. Because the words as laid out fail to call to mind an image as you read, your mind gropes in vain for something solid to hang onto. Look at the beginning of that first sentence again.

¶ A primary area
of potential improvement
is improving cost-effectiveness
of field sales-force deployment (and organization)

By the time the field sales force arrives, the rest has disappeared from your mind. But the sentence goes on:

¶ to reflect the need
for redefined selling missions
at store and indirect levels
dictated by changes in the trade environment

Now, what *nouns* do we have to hang onto here that are relatively concrete? The sales force, store, and changed trade environment, perhaps. How might they be pictured in relationship to each other?



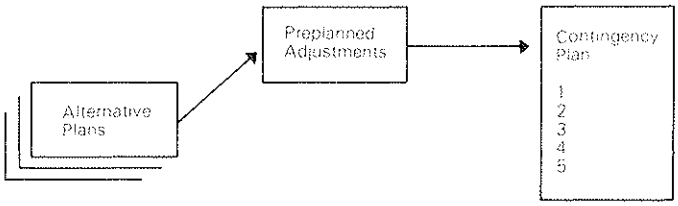
This seems to indicate that the main relationship being talked about is that of the salesman to the store. Perhaps he meant to say:

¶ We must redeploy the sales force to match the new
trading environment

As you can see, the trick is to find the nouns and look for the relationships between them, seeing them as a visual image. Let's apply the technique to the other two examples on pages 203 and 204.

¶ Preplanned adjustments may be developed
from the alternative preliminary plans
submitted by the Group
and be in the form of outlines
of contingency plans and prioritized guides to adjustments
in special programs and other discretionary expenditures

Again, the nouns seem to be "preplanned adjustments," "alternative preliminary plans," and "outlines of contingency plans and prioritized guides" (whatever that means). How might the author mean them to relate to each other?



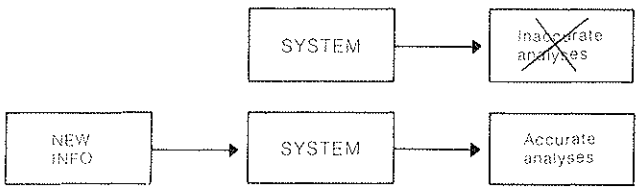
Apparently what the author wants out of the reader is some sort of contingency plan. In which case he might want to express his message like this:

> ¶ Outline the order in which activities will be curtailed should the plan need adjusting

One more example:

> ¶ Current needs for accurate cash flow analyses
> are particularly demanding upon the existing system;
> it is not prepared to meet
> the stringent accuracy requirements.
> Improvements are available
> through incorporating information
> not adequately considered in making projections

Right off, of course, we can object that it is not the system that is not prepared to meet the stringent accuracy requirements. However, to apply our process, the nouns appear to be "inaccurate cash flow analyses," "system," "improvements" and "information." Might they go together in this way?



The key insight to be gained from the image is apparently that insertion of the proper information will yield accurate analyses, giving us perhaps:

> ¶ The system can produce accurate cash flow analyses if we feed X kind of information into it.

(Without access to the author, we cannot judge what he means by "Information not adequately considered in making projections.")

To summarize, then, a useful way to help yourself write lucid prose is to force yourself to visualize the relationships inherent in your ideas. Once you have a clear mental image, you can straightaway translate it into a clear English sentence, which your reader can just as straightforwardly interpret and absorb. And he has the additional advantage of being able to store this knowledge in his memory in image form.

Storing knowledge in image form is, of course, essential given the word-by-word process of reading and our limited ability to hold many words in our minds. By rescuing the image from the words, the reader is able not only to transfer the knowledge in large chunks, which are more efficient for his mind to process, but also to transfer it as a vivid impression, which makes it easier to recall.

To quote a kinsman of mine, Professor William Minto, who lived in a more leisured era:

> In writing you are as a commander filing out his battalion through a narrow gap that allows only one man at a time to pass; and your reader, as he receives the troops, has to re-form and reconstruct them. No matter how large or how involved the subject, it can be communicated only in that way. You see, then, what an obligation we owe to him of order and arrangement —and why, apart from felicities and curiosities of diction, the old rhetorician laid such stress upon order and arrangement as duties we owe to those who honor us with their attention.

Go thou and do likewise.

APPENDIX A

PROBLEM SOLVING IN STRUCTURELESS SITUATIONS

Chapter 8, *Defining the Problem,* characterizes problem solving as a relentlessly logical process for discovering and displaying the underlying structures that give rise to events we consider undesirable. Our theory has been that the solution to a problem will always lie in tinkering with the underlying structure, as indeed it will if the problem is that we do not like the result the structure is yielding.

However, there is another kind of problem situation where the problem is not that you don't like the result, but rather that you can't explain it. You can't explain it for one of three reasons:

- Because the structure does not exist—as when you are trying to invent something new (e.g., the telephone, underwater tunnelling)
- Because the structure is invisible—as in the brain or DNA, so that you have only the results of the structure to analyze
- Because the structure fails to explain the result—as when Aristotle's definition of force did not explain the momentum of a cannonball, or when tools rust mysteriously no matter what you do to guard against it.

It is possible that you may confront one of these structureless situations in the course of an ordinary problem-solving assignment. Although such situations require a higher level of visual thinking than we have been discussing, you will be pleased to know that the reasoning process employed is very similar.

What is required is simply another form of Abduction—a name coined by Charles Sanders Peirce in 1890 to describe the process of problem solving. In calling it Abduction he hoped to emphasize the affinity of problem-solving thinking with

Deduction and Induction. Let me explain the difference between the two forms of Abduction, and show you how to use the second.

Analytical Abduction

C. S. Peirce's insight was that in any reasoning process you always deal with three distinct entities:

1. A Rule (a belief about the way the world is structured)
2. A Case (an observed fact that exists in the world)
3. A Result (an expected occurrence, given the application of the Rule in this Case).

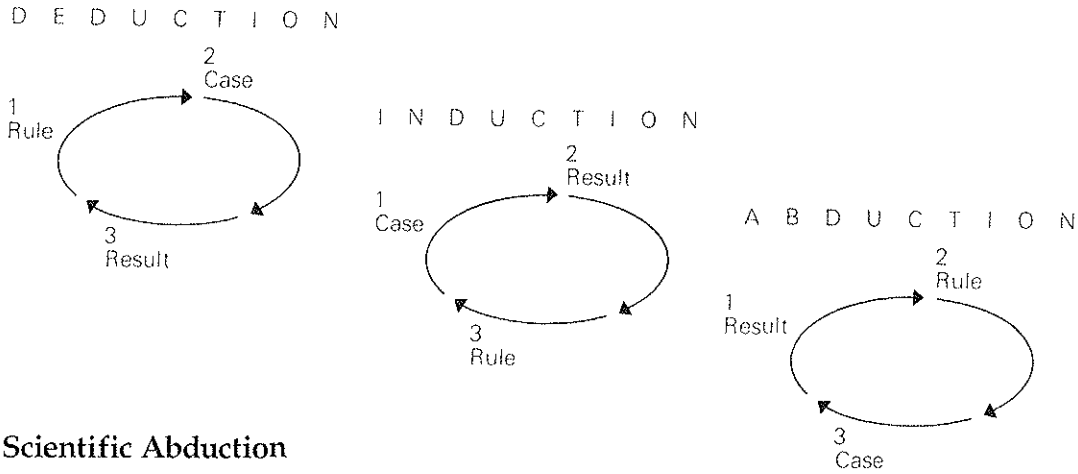
The way in which you can consider yourself to be reasoning at any one time is determined by where you start in the process and what additional fact you know. To illustrate the differences:

Deduction		
Rule	If we put the price too high, sales will go down	If A then B
Case	We have put the price too high	A
Result	Therefore, sales will go down	Necessarily B
Induction		
Case	We have put the price up	A
Result	Sales have gone down	B
Rule	The reason sales have gone down is probably that the price is too high	If A then probably B
Abduction		
Result	Sales have gone down.	B
Rule	Sales often go down because the price is too high	If A then B
Case	Let me check whether in fact the price is too high	Possibly A

We have been saying throughout that analytical problem solving consists of noticing an Undesirable Result, looking for its cause in our knowledge of the structure of the situation (Rule) and testing whether we have found it (Case). You can see that this exactly matches the Abductive reasoning process shown above.

Even though Abduction is different from Induction and Deduction—and it is important to note the difference—they are also closely related. Thus, in any complex problem-solving situation you are likely to be using all three forms of reasoning in rotation. As I said earlier, the form you are using, and the results you can expect from it, depend on where you start in the process (Exhibit A-1).

Exhibit A-1 *Where you start determines the form of thinking you will use*



Scientific Abduction

The major difference between the analytical problem solving discussed in Chapter 8 and the so-called creative or scientific problem solving discussed here is that we know the structure that creates our result and the scientist does not. That is, we have two of the essential elements and can reason our way to the third. He must invent the second before he can reason to the third.

In reasoning to the third, the scientist follows the classical scientific method:

- Hypothesize a structure that could explain the result
- Devise an experiment that will confirm or exclude the hypothesis
- Carry out the experiment to get a clear yes-or-no answer
- Recycle the procedure, making sub-hypotheses or sequential hypotheses to define the possibilities that remain, and so on.

The hallmarks of the scientific method are generating hypotheses and devising experiments. Both activities demand high levels of visual thinking.

Generating Hypotheses

Scientific hypotheses are not drawn out of the air, but are directly suggested by examining the structural elements of the situation that produced the problem. For example, if your problem is that you want to find a way to permit people to commu-

nicate over long distances without shouting, then you will be thinking specifically about ways to modify the voice or amplify the ear, and your hypotheses will reflect the possibilities you envision.

Exactly *how* you go about envisioning productive possibilities is, unfortunately, not something one can spell out in a recipe. It frequently requires a kind of genius that permits you to see analogies between what you know of the problem and what you know of the world. And indeed this is what Alexander Graham Bell apparently did in inventing the telephone:

> It struck me that the bones of the human ear were very massive indeed, as compared with the delicate thin membrane that operated them, and the thought occurred that if a membrane so delicate could move bones relatively so massive, why should not a thicker and stouter piece of membrane move my piece of steel.

Clearly, we touch the tip of a very big iceberg here. No one knows what makes an apt analogy occur to one person and not to another. Certainly having total knowledge of the problem situation helps, as does spelling out and re-examining all your assumptions about it. What we do know from those who have written about the process, however, is that their insight when arrived at is always a visual image.

Devising Experiments

Once the hypothesis is formulated, the next step is to use it to suggest experiments that will confirm or deny it. Again, visual thinking is required to say, "If this structure were valid, what would follow as a matter of course? Let me set up an experiment to prove conclusively that in fact it does follow." To put it in terms of the Abductive process:

Result I observe the unexpected fact A

Rule A may be so because B is the case

Case If B were the case, then C would follow as a matter of course
Let me check whether C does in fact follow

We can see the process very easily in the story of Galileo and the cannonball:

Result Aristotle says that force is that which produces velocity. From this it follows that when a force ceases to act on a body, the body should cease to move. Yet if I shoot a ball from a cannon, the ball continues to move even though the force has stopped. Aristotle must be wrong in his conception of force as it relates to motion.

Rule I can observe the relationship between motion and force simply by dropping a ball from my hand. When I do so I notice that the situation contains three structural elements:

The weight of the ball

The distance through which it falls.

The time through which it falls.

This suggests three different hypotheses:

1. Force is proportional to the weight of the body on which the force acts
2. Force is proportional to the distance through which the body moves when the force acts
3. Force is proportional to the time through which the force acts.

Case If hypothesis three is true, then the distance covered would be proportional to the square of the time. This means that if a body covers one unit of distance in one unit of time, it must cover four units of distance in two units of time, nine units of distance in three units of time, etc.

Let me roll a ball down the side of an inclined plane. This will slow up its fall sufficiently for me to measure the distance covered in different units of time, and thus determine whether the relation between distance and time is the one prescribed by my hypothesis.

New Rule It is the same. Therefore force is that which produces *change* of velocity.

The trick in structuring an experiment is to make sure that it will yield a clear-cut, yes-or-no answer. It is not enough to "see what happens" if you change one or another of the conditions in the situation. The result of the experiment must allow you to state unequivocally whether you will keep or discard the hypothesis.

It is in the sciences that have most rigorously applied this particular requirement that the greatest advances in our knowledge have occurred over the last 80 years. To quote Charles Darwin:

> How odd it is that anyone should not see that all observations must be for or against some view, if they are to be of any service.

To bring this discussion to a close, I have set out below both forms of Abduction. As you can see, they follow a common pattern. It is a pattern that can be of enormous value in guiding you to produce rapid breakthroughs in thinking about and resolving problems. Its value lies in the fact that it forces your thinking forward in a rigorous way, in the minimum sequence of steps, without dawdling or getting tied up in irrelevancies.

Each step demands a clear end product that you can literally *see;* each image indicates the direction in which the subsequent analyses should lead. When the problem has been solved, the images serve as anchors to guide the course of your discussion and the choice of your words.

Exhibit A-2 *Analytic and scientific problem solving follow the same pattern*

Basic Process	Analytical Problem Solving	Scientific Problem Solving
1. What is the problem?	Visualize the difference between the result you get now and the result you want	Define the discrepancy between the result you get and the result you should expect to get given the prevailing theory
2. Where does it lie?	Visualize the structural elements in the present situation that could be causing the result	State the traditional assumptions of the theory that might give rise to the discrepancy
3. Why does it exist?	Analyze each element to determine whether it is causing the result, and why	Hypothesize alternative structures that would eliminate the discrepancy and explain the result
4. What could we do about it?	Formulate the logical alternative changes in this structure that could produce the desired result	Devise experiments that will exclude one or more of the hypotheses
5. What should we do about it?	Create a new structure incorporating those changes that will produce the result most satisfactorily	Reformulate the theory on the basis of the experimental results

Herb Simon says that solving a problem simply means representing it so as to make the solution transparent. I have striven to give you an understanding of the process by which such representations can most efficiently be created and utilized. We are all probably capable of thinking far more creatively and efficiently than we ever attempt. Clearer knowledge of the process involved might influence us to try.

APPENDIX B

EXAMPLES OF INTRODUCTORY STRUCTURES

You do your most important thinking while working out the introduction. Once you get used to the process, you will find that many of the introductions fall into the same basic pattern, in that they tend generally to answer one of three standard questions, and occasionally a fourth.

1. What should we do?
2. Should we do what we plan to do?
3. How do/did we do something?
4. Why did it happen?

Exhibit B-1 shows the most common structures that fall under each question. But you might also like to see how these structures look when expanded into actual text. To this end, I supply the full introductions of the examples from Chapter 8, *Defining the Problem.*

Following these texts is an explanation of the details of two introductory structures that might cause confusion when you try to apply them (writing the body of proposals and dealing with alternatives). The appendix also explains the technique for describing changes to processes.

What should we do?

1. How solve problem? S Did/want to do X/have situation C Didn't work/can't do/have problem Q How proceed?	2. How get desired action? S Have problem C Want solution that does X Q What do to get that solution?	3. Alternatives S Want to do X C Have alternative ways Q Which?
4. Audit S Now follow process to achieve X C Did audit to see if any changes needed Q Any changes needed?	5. Recommending change in a practice the reader has not questioned S We are expecting to conduct X activity C We have two choices about how to do it – Continue as in the past – Change in some way Q Which makes the most sense?	

Should we do what we plan to do?

1. Is it the right action? S Have situation/problem C Plan action Q Is it the right action?	2. Will there be a problem? S Had problem, have solution C Afraid there may be a problem implementing it Q Will there be a problem?	3. Does solution work? S Had problem, have solution C Tested solution Q Is it okay?
4. Will solution achieve objective? S Planning action C Don't want to do unless it will achieve Y Q Will it achieve Y?	5. Letter of Proposal (B) S You have a problem C Want consulting help to solve it Q Are you the consultant we should hire?	

How do/did we do something?

1. How do needed action? S Must do X to solve problem C To do X must first do Y Q How do we do Y?	2. How implement solution? S Have problem C Have solution, not sure how to implement Q How implement solution?	3. How did you do that? S Had problem C Solved by doing X Q How did you do X?
4. Tell how to do something new S Must do X activity C Not set up to do it Q How do we get set up?	5. Tell how to do something properly S You presently have system X C It does not work properly Q How do I make it work properly?	6. Give direction S We want to do X C We need you to do Y Q How do I do Y?
7. Tell how it works S Have objective C Installing system/process to accomplish Q How does it work?	8. Letter of Proposal (A) S You have a problem C You want consulting help to solve it Q How will you help us solve our problem?	

Why did it happen?

1. Progress Review No. 1 S LOP said we would do X to solve problem C Have now done it Q What did you find?	2. Later Progress Reviews S In last PR we told you X, you said we should do Y next C Have now done Y Q What did you find?	

COMMON PATTERNS OF INTRODUCTION

What should we do?

Simmons & Smith

S = Have X approach to selling to markets now

C = Expect much higher growth, face other problems, afraid X approach will not continue to work

Q = How change?

S&S presently sells three products to three separate markets: membranes, analytical testing devices, and general filtration. It uses a small molecular-biology-oriented sales force with some dealers (23% of sales). It has done remarkably well in marketing its NC membranes into the molecular biology market, partly because of the high quality of its sales force, but has done less well in non-molecular biology product/market segments.

The molecular-biology market for NC membranes is expected to double in 3 years, while the other markets are expected to grow as rapidly. S&S is afraid that its small sales force won't be able to handle the membrane growth, let alone grab share in other markets. You do not like the idea of expanding your use of dealers because of the high (30%) commission you must pay them, and you are also concerned that dealers are beginning to compete with you in the molecular biology market by offering a synthetic NC product.

(What should S&S do to protect its molecular-biology/membrane market, and grow the others in the most profitable way?)

We believe S&S should adopt a separate distribution approach for each market.

Should we do what we are thinking about doing?

Diffraction Physics

S = May have problem

C = If so, will have to change

Q = Do I have to change?

As a supplier of scanners to IBM's EPOS systems, Diffraction Physics has the largest share of scanner sales in the European market. The company is respected for its high technical quality, and consequently commands a high price.

However, NCR/ICL are beginning to offer unbundled scanners at a much lower price. If this marks the beginning of a definite trend, it could lead to the disappearance of OEMs altogether, accompanied by aggressive price cutting.

We did a market survey to determine the extent of the threat to Diffraction Physics' position, and whether it makes sense for the company to try to sell direct as well.

Our conclusion is that Diffraction Physics should launch a major unbundled effort now, to be in a position to capitalize on long-term industry trends.

How should we do what we want to do?

City of San Sebastiano

S = Have problem

C = Know solution, difficult to implement

Q = How do we implement the solution?

The City of San Sebastiano is concerned about its inability to create jobs for its growing labor force, in light of the South Texas region's slow economic recovery, the negative impact of reductions in the Department of Defense budget, and other factors limiting job growth. The City government realizes the need to promote economic development to avoid high levels of unemployment.

However, while the City has a number of strengths and competitive advantages, it also has a number of infrastructure weaknesses that stand in the way of easy attraction of companies to relocate to San Sebastiano. You asked us to analyze the situation to determine what the City can do to overcome its problems and promote economic development.

We believe the City should begin with actions that can be initiated by local efforts.

Do we have a problem?

Anielski Airlines

S = Change taking place

C = Want to mitigate likely adverse impact

Q = What will adverse impact be?

The European transport system has begun to deregulate. Accordingly, permit restrictions against access by foreign firms have eased substantially, regulations to protect state-owned rail and airline companies from competition are being dismantled, shipping document requirements have been reduced, and border inspections have been simplified or in some cases even eliminated. Considerable debate nonetheless continues over the pace and extent of the proposed changes, and how to mitigate their impact.

(What exactly will the impact be?)

We believe that, rather than proving a problem, deregulation will act as the key catalyst in creating a truly common market.

Which alternative should we choose?

Colefax Supermarkets

S = Had plan to do X

C = Suggestion that Y might be better

Q = Which?

Colefax's new sales-based replenishment system (SABRE) was initially conceived to be a central mainframe system.

However, given that all the data input and the major use of the system will be at branch level, the question has arisen whether the system would be more practical, cost-effective, and flexible if it were designed to be branch-based. To that end, you established a committee to determine which architecture makes the most sense for Colefax.

We have now completed our analysis and have concluded that Colefax would be better served by making the system branch-based rather than centralized.

Our solution hasn't worked, what should we do?

Jackson Foods

S = Had problem, implemented solution

C = Solution hasn't worked

Q = What should we do?

Jackson Foods' supply chain costs $12 million a year to operate, or 14% of NPS. Not only is this figure high compared to competition, the system is extremely inefficient. As a result, the company has been experiencing high out-of-stock levels, resulting in poor on-time delivery and incomplete orders, as well as large backorders and credits. Inevitably in the PMG business, an inability to supply orders fully will result in loss of market share.

Jackson has recently taken steps to change its terms of trade, in an effort to increase order sizes and reduce the number of delivery points. However, this action has made little difference to the supply chain's cost or efficiency. And it is clear that continuation of the low level of service at this high level of cost will have a profound impact on Jackson's financial performance.

If Jackson is to protect its financial position, both now and in the future, it must begin to see its supply chain as a source of competitive advantage, and target cost and service improvements as part of a long-term bid to become the most efficient provider in the industry.

DIFFICULT INTRODUCTORY FORMS

Although all introductions have the simple S-C-Q structure, some require a bit more thought than others to get right. I have selected the two most common of these for further explanation:

- Proposing steps to solve problems, as in consulting proposals and project plans
- Dealing with alternative solutions

Proposing Steps to Solve Problems

Most business documents are written after the problem they address has been solved. The purpose of some documents, however, is to tell the reader the steps the writer will go through to find the solution to the problem. Consulting proposals and project plans fall into this category.

Both documents require you to define the problem in the introduction, and both are generally structured around the steps in the analysis. Both spell out for a prospective client (or a requesting manager) your understanding of what his problem is and how you propose to go about solving it. If the proposal or project plan is accepted, you will then conduct an analysis into the causes of the problem, and write a report embodying your conclusions and recommendations.

In the case of a consulting proposal, you are generally also establishing a contractual agreement that tells the client what he is buying, how much it will cost, when it will be finished, and who will do what in the process. As a way of ensuring that these items get included in the document, most consulting firms have adopted a standard set of headings around which to structure their proposals:

Introduction
Background
Objectives and Scope
Issues
Technical Approach
Work Plan and Deliverables
Benefits
Firm Qualifications and Related Experience
Timing, Staffing, and Fees

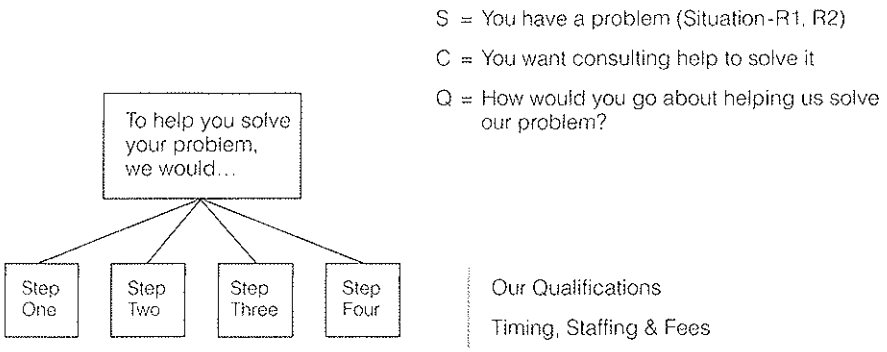
The trouble with writing around such headings is that they encourage the writer to make lists under each section. The lists tend to overlap and thus work to obscure your actual thinking.

For example, the information that would go under Introduction, Background and Objectives and Scope has to do with the definition of the problem, while that under Issues, Technical Approach, and Work Plan and Deliverables actually deals with the steps in solving the problem. And the value of a separate Benefits section has always eluded me, given that the benefit is that you will solve the client's problem, which I presume was the objective in the first place.

Consequently, as noted in Chapter 4, *Fine Points of Introductions*, I recommend a structure like that shown in Exhibit B-2, in which the introduction explains the problem and the document itself is structured either around the approach (as is shown here) or around a set of reasons about why the client should hire you, as shown in Exhibit B-3. (Project Plans are always structured around the process).

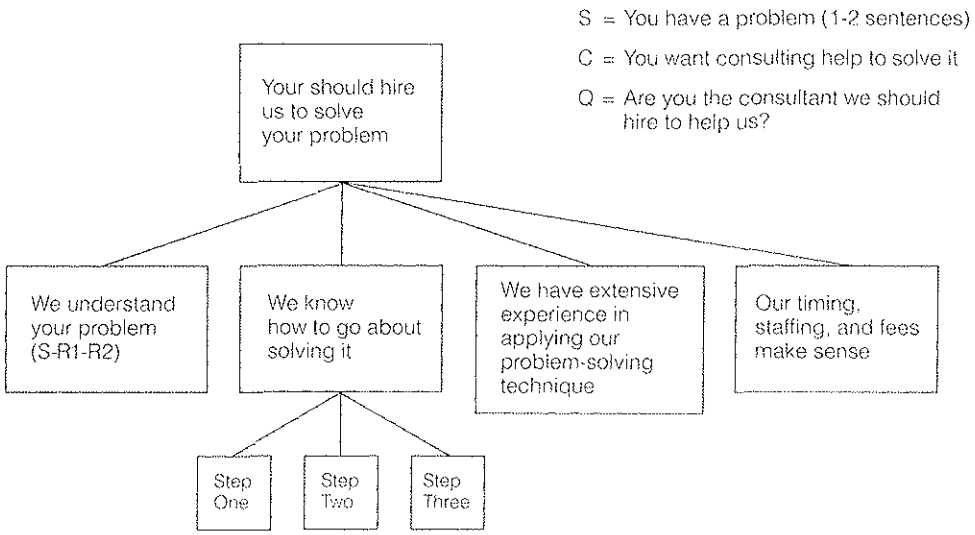
The consulting firm's qualifications and information about timing, staffing, and fees, are included in a proposal, but are considered outside the structure of the thinking.

Exhibit B-2 *You can structure a consulting proposal around 'steps'*



As to whether you want to structure to show the steps in the process or to explain the reasons for hiring you, that depends usually on the competitive nature of the proposal. If it is a client you have worked with before, and the proposal is simply a confirmation of what you have agreed to do for him this time, I suggest structuring around the steps in the process. If, however, it is a competitive situation, you probably want to structure around the reasons the client should hire you, as shown in Exhibit B-3.

Exhibit B-3 *You can structure a consulting proposal around 'reasons'*



The major difference is that in the second approach you begin with a short paragraph that reads something like this:

> We were delighted to meet with you to discuss your plans to market your software to developing countries. This document represents our proposal for helping you develop an appropriate marketing strategy. It consists of:
>
> – Our understanding of the market opportunity available to you
>
> – The approach we would take to helping you develop a strategy for taking full advantage of that opportunity
>
> – Our experience in carrying out this kind of assignment in the past
>
> – Our business arrangements.

The first section would then explain the problem in detail, using the Situation-R1-R2 structure and making sure to address the specific hot buttons or agendas* of the client decision makers that are expected to be factors in the selection process. The second section would set out the approach, while the third would highlight the specific or unique expertise you bring to solving the problem.

To give you a sense of the process, Exhibits B-4 and B-5 show the problem definition and pyramid for a U.S. telephone company that wanted to sell its software to developing countries. The facts were as follows:

The company had for years developed its own business and administrative software. Some of what it had developed in prior years was now obsolete for their purposes, but it saw a possible demand for this kind of software in developing or third-world countries. It consequently had decided to set up a joint venture to build product families on distinctive competencies, and sell these to attractive segments.

* For a superb discussion of assessing client concerns, see "Writing Winning Proposals" by Joseph Romano and Richard and Shervin Freed (McGraw-Hill, New York, 1995)

However, the company had never sold to these markets before, and did not know what the market segments were, let alone which were the attractive ones. It had consequently decided to hire a consulting firm to help it determine which were the attractive markets for its software products.

These facts can be laid out in the problem-definition framework like this:

Situation

Starting Point / Opening Scene

Client–US telephone company

Telephone companies in developing countries

Disturbing Event

Change in policy, developing country companies now willing to buy SW applications from other telcos.

R1

Opportunity to supply Telcos w/own-developed SW applications

R2

Become profitable vendor of business/ admin SW systems

Set up joint venture to build product families on distinctive competencies, sell in attractive segments

Don't know which opps. are most attractive

Become profitable OSS vendor

Hire consultant to identify attractive segments

Then, reading from left to right, you would transform them into a pyramid that looks like this:

S = Telephone company use of software in developing countries is the fastest growing segment of the worldwide telecommunications industry. Companies used to develop their own or buy from vendors, now willing to buy from other telcos.

C = You have decided you want to supply this market, but not sure which segments offer most attractive opportunities or how to invest scarce resources to succeed.

Q = How will you help us determine the answers to these questions?

We will identify the best strategy for serving the market

Identify the various market segments and the buying behaviours of each

Project annual spending in each application area

Determine supplier positioning with prospective customers

Identify specific markets customers, and marketing approaches most appropriate for your products and capabilities

Dealing with Alternative Solutions

The third solution possibility in the first section of Exhibit B-1 deals with alternatives. Remember that, as I said in Chapter 4, strictly speaking there is no such thing as an alternative solution to a problem. Either what you recommend will get the reader from R1 to R2, or it won't, and in that sense there are no alternatives. So-called alternatives arise when the R2 is ambiguously stated, so that you cannot judge that you have a solution when you see it.

What tends to happen with a vaguely stated R2 is that people arbitrarily select three or four likely courses of action and begin to compare them to each other in terms of their strengths and weaknesses or pros and cons. It is of course irrelevant how the alternatives compare to each other; what matters is how they compare to the R2. But as there is no recognizable R2 given, what people are really doing is trying to back into defining what it should be.

You are much better off trying to define the R2 at the very beginning. (Indeed, step one of your problem-solving process is often to define the R2.) One can end up with a clear definition of R2 the other way, but it is very hard work, particularly as most people feel compelled to try to balance the lists of strengths and weaknesses under each alternative. And of course they feel it necessary to list all of these strengths and weaknesses in the text, without any effort to summarize the groupings and integrate them into a pyramid.

Strictly speaking, alternatives should be discussed in the document only when they are known in advance by the reader, which means he will have identified them himself as possible courses of action. In that case his question is "Which one?" Otherwise, if the alternatives are not known in advance, you place yourself in the awkward position of bringing them up to knock them down. Your reasoning on the Key Line would have to be something like this:

> ¶ There are three possible ways to solve this problem: A, B, and C.
> Way A is no good because . . .
> Way B is no good because . . .
> Therefore do way C.

The reason for doing C is not that A and B are no good; the reason for doing C is that it solves the problem. In which case, why were A and B brought up? "Because the reader asked for them," you might say. "He said, 'Tell me how to solve my problem and tell me what my alternatives are.' " He cannot logically, of course, have expressed the need to know his alternatives unless his problem is ill-defined—i.e., unless his R2 is ambiguous.

In that case, he is very likely not really asking for alternative solutions but for alternative R2s. These you *can* have. It is then perfectly permissible (in terms of being as clear as possible in communicating your thinking) to structure the document around the alternative R2s. This structure works if you find that no solution you generate will give the reader the entire R2 that he desires:

- Do X if what you want is earnings stability
- Do Y if what you want is fast growth
- Do Z if what you want is labor peace.

If the reader is not asking for alternative R2s and still insists on having "alternatives"—even though you have a clear solution to a clearly stated R2—you have two choices. Either put them in the introduction, which can be unwieldy, or relegate them to an appendix. If you put them in an appendix, an effective approach is to show them in a chart, with the alternatives listed down the side, the criteria by which you made your judgment listed across the top, and check marks showing where the alternative did or did not match the criteria.

DESCRIBING CHANGES TO PROCESSES

Most times when you write a document that recommends changing a process, the reader is familiar with both the process and its problems. Accordingly, the introduction need only describe them briefly, and the document can be structured around the changes to be made:

S = Have X process now

C = Not working

D = How change?

The trick, as we saw in Chapter 4, *Fine Points of Introductions*, is clearly to visualize the steps in the "before" and "after" of the process, to ensure that you get the desired "changes" clear to yourself. There are two other situations in which you need to do this before-after analysis in order to write a brief but clear introduction.

- When the reader knows both the unsatisfactory old process and the desired new one, so that his question is either "How do I implement it?" or "Should I implement it?"
- When the reader has no idea of the workings of the process, nor even that problems with it exist, and whose question is not only "How do you want to change it" but also "Why does it need to be changed?"

The tendency in writing introductions in these cases is either to avoid describing the processes at all, or to over-describe them. This appendix shows you a poorly written example of each situation, and explains how to apply the before-after analysis to restructure them.

The Reader Knows the Old and the New

The introduction to Exhibit B-4, *DDT: A System for Document Digitalization and Teletransmission,* was written to someone who wanted to know whether an existing process could be changed in a specific way. What it says is approximately this:

S = We previously did a study telling how documents could be stored and transmitted by computer. Research Institute also did a study on the problems of transmitting documents on Euronet/DIANE. You recommended more technical studies.

C = We have been looking at the technological, economic and managerial issues of converting documents to digital form and delivering them electronically. This is because technology is rapidly developing and could permit electronic document delivery.

Q = ?

A = It is technically possible to do at reasonable cost on a European scale

- We conceived a system to build on DIANE called DDT
- Market forces will not bring such a system about, it demands a demonstration project
- Further technical studies are needed
- Important nontechnical issues must be resolved.

Ignoring the sheer ugliness of the title, what we have here is a writer who is unsure of what he should be saying, and so says it in an obscure manner. He hasn't made clear to himself the problem the Commission is concerned with, or what it wants from him. "Looking at the technological, economic and managerial issues of converting documents to digital form and delivering them electronically" is not very enlightening as a statement of purpose.

Anyone reviewing the document, however, can easily use the Problem Definition Framework as a guide to revealing how to clean up the structure and at the same time make the language more specific. The first step is to sketch the process taking place now, and note how the Commission wants to change it.

What they have now, apparently, if you read the text closely, is a situation in which someone scans a televised listing to locate a document, and telephones a library requesting it. The library locates the document, has it copied, and mails the copy to the requester. Total elapsed time, 7 to 10 days.

Exhibit B-4 *The process is not described*

DDT: A System for Document Digitalization and Teletransmission

Introduction

The Reason for Our Study

In August we were commissioned by you to conduct a study of "Document Digitalization and Teletransmission." We were to identify and analyze mechanisms:

> Enabling a transition to digital storage and transmission techniques
>
> Required for the cost effective transmission of documents

The "Problems of Document Delivery for the Euronet User" were discussed in a technical report prepared by the Research Institute last year. On line search services for scientific and technical information (STI) enable the user to identify promising references in the literature quickly and easily. But the user's needs are not met until he has a full text copy of the relevant articles, so a speedy, comprehensive and economic document delivery service is needed. The planning study prepared by the Research consultants sheds light on the requirements, problems and possible solutions for document ordering and delivery on Euronet/DIANE.

DIANE is operational today. The acronym stands for Direct Information Access Network for Europe. It represents the ensemble of information services available through the Euronet telecommunications network. Euronet itself is a data transmission facility, not an information service.

DIANE provides a framework for the services that major European hosts offer via Euronet. The hosts are typically computer service bureaus which store bibliographic data bases. By providing a medium for the introduction of common features, such as standard command language, referral service and user guidance, DIANE presents a clearer image to the user of the wide range of information services available through the network.

The EEC Committee for Information and Documentation in Science and Technology (CIDST) considered the Research Institute report, and the comments and recommendations of others who studied it, and recommended additional technical studies.

We have undertaken two of these, looking at the closely related technological, economic and managerial issues of converting documents to digital form and delivering them by teletransmission. The background to the study is the rapid development of computing and telecommunications technology that might already, or could be expected in the near future, to provide the means of electronic document delivery. This could eliminate, or cut down significantly, the movement of paper currently supplied by a document fulfillment center to a reader

Conclusions

Our study confirmed that it is technically possible to convert a document into a digital form that can be stored in a computer data base and transmitted by digital telecommunications to printers located near to those who wish to read the documents.

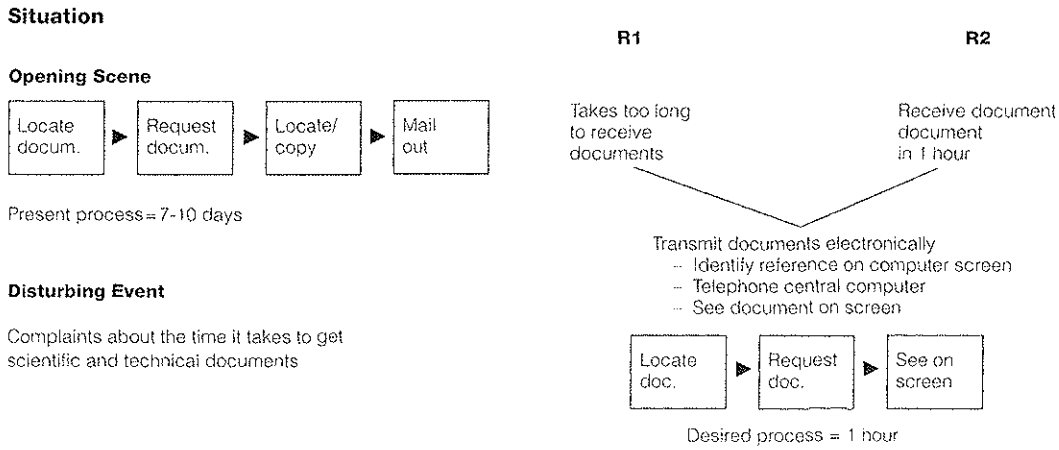
The cost of digitalization and teletransmission continues to fall. However, expensive equipment is required, and large volumes of documents must be handled to achieve low unit costs. An operation planned on a European scale could deliver documents overnight at a marginal cost per page that is comparable with the charges made by fulfillment centers now meeting requests by copying and mailing documents.

We conceived a system, called DDT, which would use existing technology in a new way and looked at the organizational, managerial, legal and regulatory issues involved in establishing it as a Europe wide operation. DDT would build on the experience gained with DIANE, and supplement it. It would be a speedy, comprehensive and economic document delivery service, accepting requests in the form of bibliographic references and fulfilling them by teletransmission from data bases of digitalized documents.

> However, we believe that market forces will not bring such a system about. If the demand for quick access to full texts is to be satisfied, then a demonstration project is required.
>
> DDT must develop as an open system, through which any information provider can deliver documents to any user. It must therefore be based on international standards.
>
> Further technical studies are needed to determine how to apply existing technology to DDT.
>
> Important nontechnical issues must be resolved before DDT can flourish.

What they would like instead is a system in which printed documents are converted to digital form and stored centrally. The user would then scan a TV listing, telephone for the document, and receive it back on his screen within an hour.

Structure of DDT Problem



With the problem laid out in this form, it is easy to see that the reader both understands the problem and has come up with a solution. The question therefore falls into the "Is it a good solution?" category, or more specifically, "Can we develop a low-cost system that will transmit documents electronically?

This understanding would probably have led the writer to an introduction and structure something like this:

S = EEC Committee for Information and Documentation in Science and Technology (CIDST) is concerned about the inefficiency of the present process for getting access to scientific/technical documents via Euronet. Users can locate the source of documents easily with on-line search services, but must wait 7-10 days while documents are copied/ delivered by mail.

C = Better way would be to convert documents to digital form, store centrally, deliver electronically via Euronet/DIANE. Asked us to investigate, determine whether development of a low-cost system is feasible.

Q = (Is it feasible to develop a low-cost system that will transmit documents electronically?)

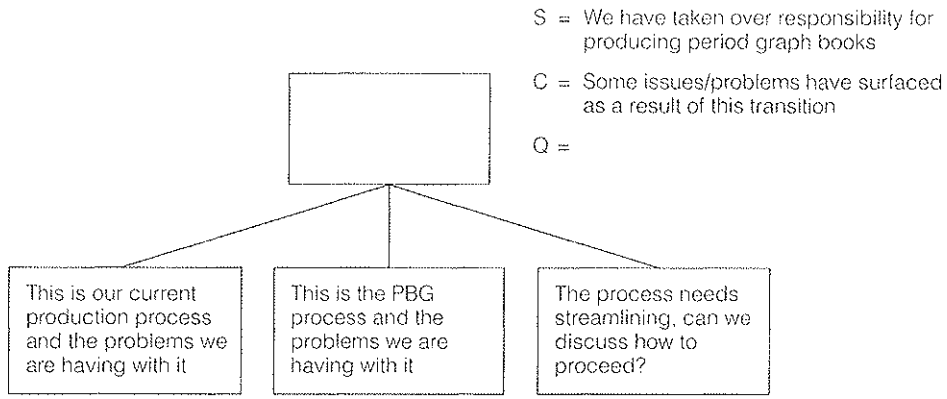
A = Feasible but not practical at the moment
- System would need to be European-wide to achieve low unit costs
- Many barriers to achieving European-wide coverage
- Best approach is to launch demonstration product that will create demand sufficient to eliminate barriers

The Reader Knows Little or Nothing

The DDT document was a situation in which the reader knew both the problem and the solution. Very often, however, you will write to get approval for a solution when the reader does *not* know the problem, so that it has to be explained in detail. Here the temptation is to want to describe how the system works now and all the things wrong with it before getting to the changes you intend to recommend.

The rule on introductions says that we cannot say anything in the introduction that the reader does not know or will not accept as true. But you can say enough to enable the reader to "see" that a problem could exist, and that the solution you have could be plausible, However, to be able to do so you need first to make sure that you yourself "see" the problem clearly.

To illustrate, look at the Period Graph Books memorandum in Exhibit B-5. It describes in great detail the problems with a system for producing period graph books. The graphs show monthly sales, cost, and profit performance for a company's five subsidiaries, and are used as the basis for presentations to top management. Its structure is shown below.



You will note that it does not give a solution, other than to say that the system needs "streamlining." As a rule of thumb, you never want to present problems without also offering solutions. In any case, as we shall see, the solutions are inherent in the statement of the problems if that is done properly. The steps would be to:

- Draw a picture of the present processes
- State what is wrong with each
- Draw a picture of the system required to eliminate the problems
- State the changes needed to get from the old system to the new one
- Explain the problem succinctly in the introduction

Exhibit B-6 shows what the pictures would look like in this case.

Exhibit B-5 *The process is over-described*

TO:

FROM:

SUBJECT: Period Graph Books

As you are aware, commencing in Period 5 the Corporate Financial Analysis Department assumed responsibility for the production phase of four graph presentation books from the Corporate Planning Department. The purpose of this memo is to outline some of the issues/problems that have surfaced as a result of this transition.

Production

In order to address these issues more clearly, I will briefly outline the production phase as it currently exists. Specific activities are as follows:

1. Data gathering -- Base data sources consist of external reports (e.g., "P" forms), internal division documents, and information relayed verbally from the division via telephone.
2. Specific data point generation -- involves either manual or computerized (PBG only) calculations. For example, rolling 13 revenues, costs, and percentages (e.g., A&M as % of Net Sales).
3. Transcribe data points to input sheets -- John Brennan's area supplies computer printouts of data points YTD and analysts update it for latest period's data. There is one computer page for each graph and generally each graph requires 2 new data points -- actual and rolling 13. These input sheets, upon completion, are returned for updating the Color Graphics' data base.
4. Data validation -- Check for reasonableness and ensure consistency of calculations.

Issues

The basic issue concerns the overall control from the point of obtaining divisional information to the actual generation of graphs. With respect to the four books transferred to the Corporate Analysis Group, this has made the control even more difficult, as it has injected one more individual into the process, and it has served to further fragment and abet an inefficient system.

In support of this, I will outline the process for the PBG monitor book and some of the related problems. The majority of PBG's monitor book calculations are computerized on a Corporate System designed solely for PBG due to the massive amount of calculations needed, since approximately 13 graphs are generated for each region.

The primary data source for input into this PBG Corporate System is the Division's internals, which are computer outputs from their systems. These results are re-input into the Corporate PBG System, which calculates rolling, YTD, per case, and percentage data points to be used for the graphs. This Corporate Computer printout is used to provide data points for Color Graphics input sheets. The Color Graphics Department re-inputs these points into their data base and generates the graphs.

As described, the process involves divisional personnel and 3 Corporate departments -- Planning, Financial Analysis, and Systems. The period data in one form or another is input into a computer system no less than *three* times. Thus, we have created a very inefficient system and have increased the potential for error due to the number of people involved and the related fragmentation.

Some of the problems that we've encountered during the 7 periods that we've been involved are:

- Inconsistency of data input between periods and between regions
- Incorrect calculation of Variable Costs due to the original computer program design
- Unexplained changes in data points that were previously correct
- Data base was not updated for prior period's information so that this information had to be posted again on the computer input sheets.

Overall Assessment

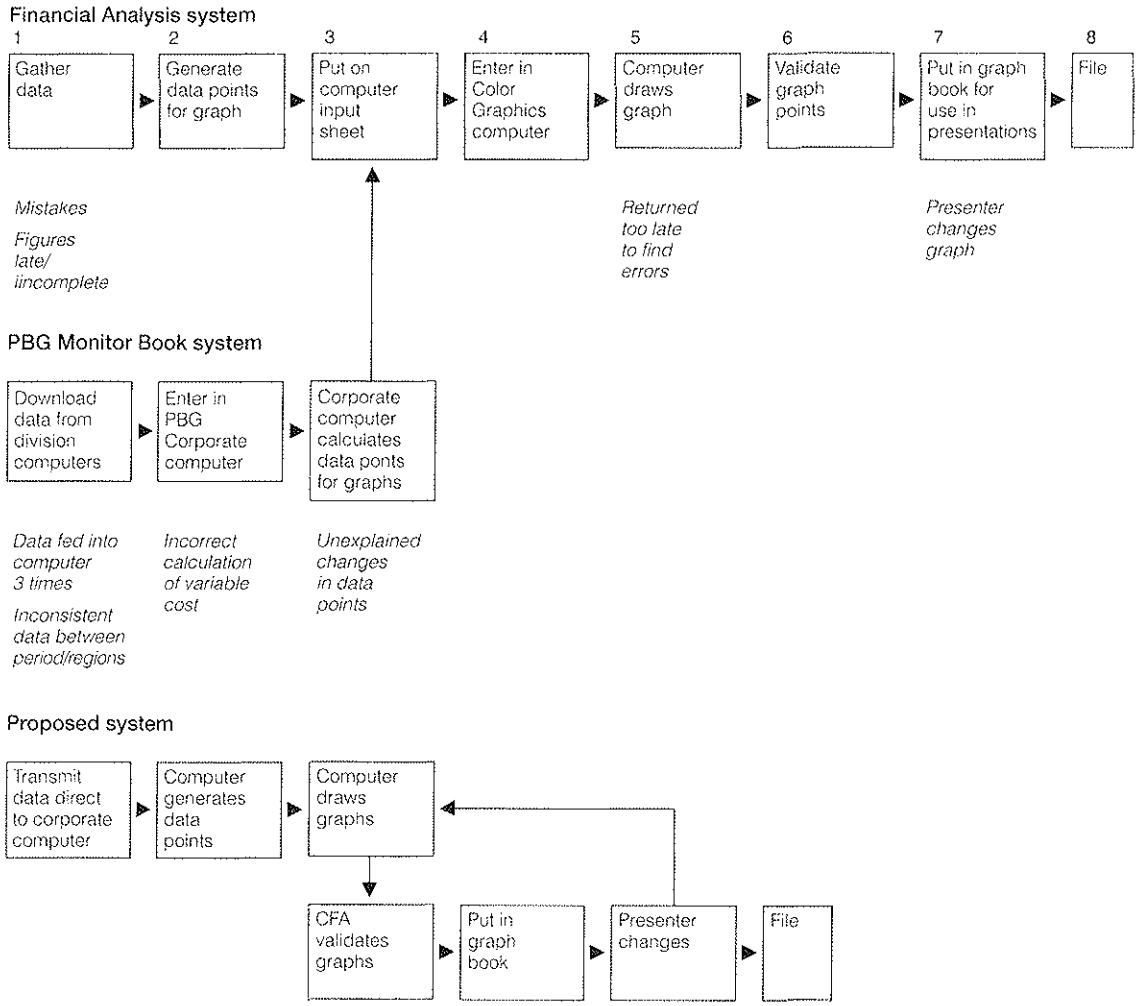
The majority of these problems have arisen due to the cumbersome inefficient nature of the process itself. The fragmentation of the production process has resulted in no one person having control of the data and has created "gray areas" for which responsibility is unclear. The risk of potential errors has increased, as there is the chance that things will fall between the cracks.

The production process sorely needs streamlining, both in terms of the individual books, as well as in terms of a base computer system that would efficiently execute all of the divisions' common calculations, e.g., rolling data points. Given our current staffing, we cannot handle the production streamlining and control of the graph books.

At your convenience, can we discuss how to best proceed?

Exhibit B-6 shows what the pictures would look like in this case.

Exhibit B-6 *Visualize the individual processes*



As you can see, there are two systems, one where the figures are entered manually before being calculated, the other where they are downloaded from a computer. In the first system, mistakes are made because the data are gathered and entered manually, the figures are often late or incomplete, and frequently the graphs are returned by the computer too late to pick up errors in them. But even if the graphs are correct when put in the book, the presenter may arbitrarily decide to change them to show a clearer (or more desirable) trend line. In such cases he does not inform the staff group of the changes.

The PBG analysts are able to gather their data from divisional computers rather than manually. But it is re-fed separately into PBG's corporate computer and again into the Color Graphics computer. This leads to inconsistent data between periods and regions, and unexplained changes in data points that were previously correct.

Once the two systems are laid out and the problems with each identified, it is easy to see that the major problem is that the system produces unreliable graphs because errors occur: when the data are entered, when the data points are calculated, and when the presenters change the graphs.

The person writing the memo thought they could eliminate the first two sets of problems by doing everything on the same computer, and the third by imposing discipline on the presenters. Visualizing the before, the after, and the differences between the two then makes it easy to specify the desired changes.

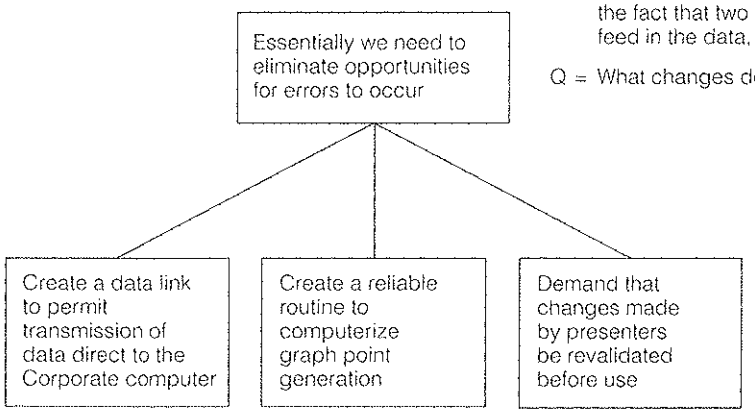
- Create a data link to permit transmission of the data direct to the Corporate computer
- Create a reliable routine to computerize graph point generation
- Demand that changes made by presenters be revalidated before use.

The changes will form the Key Line of the pyramid, answering the question, "What changes do you recommend?" It is now a simple matter to work backward to determine what information has to be communicated in the introduction to induce the reader to ask the question.

S = As you may know, beginning in Period 5 Corporate Analysis recently took over from Corporate Planning the production of four of the graph presentation books used as the basis for presentations to top management. PBG continues to produce the fifth.

C = Even though the figures are calculated by computer, we have found a number of occasions when the figures are either incorrect or inconsistent. The problem appears to lie in the fact that two separate systems are used to feed in the data, neither of which is efficient.

Q = What changes do you recommend?



The question raised by each Key Line point would be "Why?", and underneath each point can be a detailed explanation of the undesirable way the system works now and how this action would eliminate the problem. What you do not have to do is explain every single step of the system—only those where a problem occurs—which greatly cuts down on the number of words required in the memo.

APPENDIX C

SUMMARY OF KEY POINTS MENTIONED IN THE TEXT

Chapter 1 Why a Pyramid Structure?

1. You must group ideas in order to communicate them
2. Grouped ideas form a pyramid at various levels of abstraction
3. The most efficient way to feed the ideas to the reader is from the top down
4. Ideas within the pyramid obey three rules
   - Ideas at each level summarize the ideas grouped below
   - Ideas in each grouping are logically the same
   - Ideas in each grouping are in logical order
5. The key to clear writing is to slot your ideas into the pyramid form and test them against the rules before you begin to write

KEY CONCEPT

Pyramid Rules

- Ideas at each level must be summaries of the ideas grouped below
- Ideas in each grouping must be the same kind of idea
- Ideas in grouping must be in logical order

Chapter 2 Substructures Within the Pyramid

1. The pyramid boxes contain ideas; an idea is a statement that raises a question in the reader's mind
2. Vertically, the ideas create a question/answer dialogue with the reader
3. Horizontally, the ideas answer the reader's question either deductively or inductively, but not both at once

KEY CONCEPT

Pyramid Relationships

- Ideas relate vertically (question/answer)
- Ideas relate horizontally (deductive/inductive)
- The top point answers a question arising out of what the reader already knows
- The introduction triggers the initial question

4. The introduction tells a story that reminds the reader of the original question the document is meant to answer
5. The story consists of a Situation with which the reader is familiar, within which a Complication developed, with which he is also familiar
6. The Complication triggers the Question to which the document gives the Answer (the point at the top of the pyramid)

Chapter 3 How to Build a Pyramid Structure

1. You can build the pyramid from the top down
   - Identify the Subject
   - Decide the Question
   - Give the Answer
   - Check that the Situation and Complication will lead to the Question
   - Verify the Answer
   - Move to fill in the Key Line
2. Or from the bottom up
   - List all the points you think you want to make
   - Work out the relationships between them
   - Draw conclusions
   - Work backward to get the introduction

KEY PROCESS

Building a Pyramid

- Identify the Subject
- Decide the Question
- Give the Answer
- Check that the Situation and Complication will lead to the Question
- Verify the Answer
- Move to fill in the Key Line

Chapter 4 Fine Points of Introductions

1. Introductions are meant to remind rather than to inform
2. They should always contain a Situation, a Complication, a Question, and an Answer
3. The length of the introduction depends on the needs of the reader and the demands of the subject
4. Write mini-introductions at the beginning of each Key Line grouping

KEY PROCESS

Writing the Introduction

- State the Situation
- Within which a Complication developed
- That triggered the Question
- To which your document is the Answer

Chapter 5 Deduction and Induction: the Difference

1. Deductive reasoning presents a reasoned argument in which the second point comments on the first, while the third point states the implication of the first two points existing in the world at the same time
2. The summary of a deductive argument takes the last point, puts it above, and adds a "because" to cover the first two points
3. Inductive reasoning brings together a set of like conclusions and draws an inference based on seeing a similarity between them

KEY CONCEPT

Logical Reasoning

- Deduction presents a line of reasoning
- Induction brings together like ideas or related actions
- Prefer inductive reasoning to deductive at the Key Line level

4. Prefer inductive reasoning to deductive reasoning at the Key Line level, because it is easier for the reader to absorb

Chapter 6 Imposing Logical Order

1. Imposing logical order helps you make sure that you do not
   - List news items as if they were ideas
   - Leave out any ideas important to the grouping
2. The logical order for any grouping reflects the source of the grouping
   - Time order if you got the ideas by visualizing a process
   - Structural order if you got the ideas by commenting on a structure
   - Order of importance if you got the ideas by creating a class
3. If you cannot find one of these orders in a grouping, it tells you either that the ideas do not relate logically, or that your thinking about them is incomplete
4. To test the order in a listing of ideas
   - Translate each point into a short statement of its essence
   - Group together those that match
   - Impose the proper order
5. If the ideas are action ideas
   - State each action so specifically that it implies an end product you can hold in your hand
   - Group together those that together lead to the same effect
   - Identify the process or structure on which the grouping was based, and order accordingly
   - Check that you have not left any steps out
6. If the ideas are situation ideas
   - Group together those that say a similar kind of thing
   - Identify the structure or class on which the grouping was based
   - Reword the points as full sentences, and decide the order
   - Check that you have not left any points out

KEY CONCEPT

Types of Logical Order

- Time order if you got the ideas by visualizing a process
- Structural order if you got the ideas by commenting on a structure
- Order of importance if you got the ideas by creating a class

KEY THINKING TECHNIQUE

Ordering Action Ideas

- State each action to imply an end product
- Group together those that together lead to the same effect
- Identify the process or structure on which the grouping was based, and order accordingly
- Check that you have not left any steps out

KEY THINKING TECHNIQUE

Ordering Situation Ideas

- Group together ideas that say a similar kind of thing
- Identify the structure or class on which the grouping was based
- Reword the points as full sentences, and decide the order
- Check that you have not left any points out

KEY THINKING TECHNIQUE

Summarizing Grouped Ideas

- Summarize action ideas by stating the direct effect of carrying out the actions
- Summarize situation ideas by stating the implication of their similarity

Chapter 7 Summarizing Grouped Ideas

1. Avoid intellectually blank assertions ("There are three problems . . . " etc.)
2. You cannot summarize a grouping of ideas unless the ideas in the grouping are MECE (Mutually Exclusive of each other and Collectively Exhaustive in terms of the whole)
3. Actions always go in time order, and are always summarized by stating the direct effect of carrying out the actions
4. Situation ideas go together because of a similarity between them, in that they all
   - Discuss the same kind of subject
   - Express the same kind of predicate (verb or object)
   - Imply the same kind of judgment
5. To sort a list of action ideas
   - Pare each idea to its barest essence
   - Distinguish the levels of abstraction (i.e., must one action be done before another, or in order to achieve another?)
   - Word the points as end products
   - Draw the effect directly from the actions
6. To sort a list of situation ideas
   - Find the structural similarities in the sentences
   - State the narrow category into which these, and only these, ideas can fall
   - State the inference implied by the similarity

KEY CONCEPT

Finding Similarity in Ideas

- They will all discuss the same subject
- They will all involve the same activity
- They will all act on the same object
- They will all imply the same insight

KEY THINKING TECHNIQUE

Structuring a List of Action Ideas

- Pare the points to their barest
- Distinguish the levels of abstraction
- Word the points as end products
- Draw the effect directly from the actions

KEY THINKING TECHNIQUE

Structuring a List of Situation Ideas

- Find the similarity in subject, verb, object or implication
- State the narrow category into which these fall
- State the inference implied

Chapter 8 Defining the Problem

1. Lay out the parts of the problem
   - Starting point/opening scene (the specific area within which the problem occurred)
   - Disturbing event (what happened to upset the stability of that area)
   - R1 (what you don't like about what the area is now producing)
   - R2 (What you want from the area instead)
   - Answer (what, if anything, has been done about the problem thus far)
   - Question (what must be done to solve the problem)
2. Convert the problem definition into an introduction
   - Move from left to right and down
   - The last thing known by the reader is always the Complication

KEY THINKING TECHNIQUE

Defining a Problem

- Visualize the area within which the problem occurred
- State what happened to upset its stability
- Identify the undesired result (R1)
- Specify the desired result (R2)
- Determine whether any action has been taken to resolve the problem
- Identify the question to be answered by the analysis

Chapter 9 Structuring the Analysis of the Problem

1. Use diagnostic frameworks to show the structure of the problem area
   - Show how units interact as a system
   - Trace cause-and-effect activities
   - Classify possible problem causes
2. Gather data to prove/disprove which elements in the structure are causing the problem
3. Use logic trees to:
   - Generate and test recommended solutions
   - Reveal the relationships inherent in lists of ideas

KEY THINKING TECHNIQUE

Structuring an Analysis

- Define the problem
- Use diagnostic frameworks to show the detailed structure of the problem area
- Hypothesize the likely causes of the problem
- Gather data to prove/disprove the hypothesis

Chapter 10 Reflecting the Pyramid on the Page

1. Highlight the structure with headings, indentations, underlining, and numbering
2. Show transitions between the major groups of ideas in the pyramid

Chapter 11 Reflecting the Pyramid on a Screen

1. Design text slides to be as short and direct as possible
2. Design exhibit slides to show their message simply; state the message across the top of the slide
3. Use a storyboard to outline the structure of your presentation
4. Rehearse, rehearse, rehearse!

Chapter 12 Reflecting the Pyramid in Prose

1. Visualize an image of what you are trying to communicate
2. Copy the image in words

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ABOUT THE AUTHOR

Barbara Minto grew up in Cleveland, Ohio. She began her career on the staff of Cyrus Eaton, the industrialist who founded the famous Pugwash Conferences of nuclear scientists. Working as part of the team that organized and ran the conferences, she received sound training in tackling the problems of communicating clearly on technical subjects.

In 1961 she left Mr. Eaton to attend the Harvard Business School, in the second class to admit women. Returning to Cleveland in 1963, she joined McKinsey & Company, the international management consulting firm, as their first female consultant. Her ability to write was noted, and she was transferred to London in 1966, to concentrate on developing the writing skills of their growing European staff. All reports at that time were written in English, and it was thought that consultants not writing in their first language would experience special difficulties.

It became apparent to her very quickly, however, that the writing difficulties in Dusseldorf and Paris were the same as those in New York and Cleveland. The problem was not so much to get the language right as to get the thinking clear. This insight led her to concentrate on discovering the structures of thinking that must underlie clear writing, and eventually to develop the ideas that make up this book.

She still lives in London, but has since 1973 run her own firm, Minto International, Inc. She specializes in teaching the Minto Pyramid Principle to people whose major training is in business or the professions, but whose jobs nevertheless require them to produce complex reports, analyses, memorandums, or presentations.

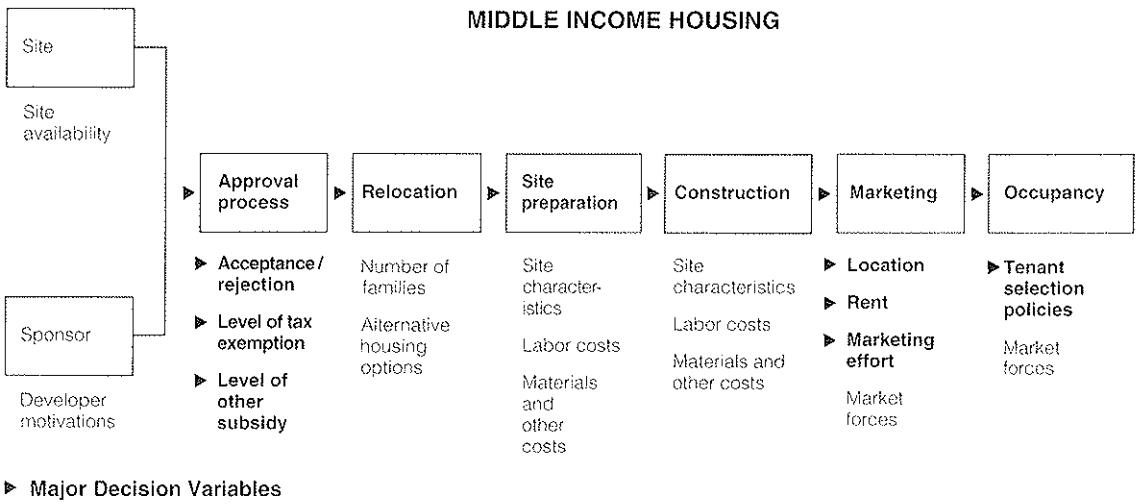
She has taught her live course to most of the major consulting firms in the United States, Europe, Australia, New Zealand, and the Far East, as well as to many of the country's largest corporations. She has also lectured at the Harvard, Stanford, Chicago, and London business schools, and at the State University of New York. And she has produced a video course and a computer software program that guides a user through the development of a Minto pyramid.

For example, there are a variety of ways for New York City to provide middle income housing (e.g., one location, several locations), but following any one of them could bring it into conflict with its stated objectives for other policy areas (e.g., refuse disposal, air pollution). Issue Analysis was developed as a way of determining how to balance those objectives.

A key step in the Issue Analysis process was to make a chronological diagram of the policy area and show the Major Decision Variables (MDVs) at each stage (environmental, economic, administrative, and social factors affecting each activity). Then they would formulate hypotheses to describe how the MDVs would affect performance against objectives, and define the decisions to be made in terms of the MDVs judged essential to the attainment of the objectives.

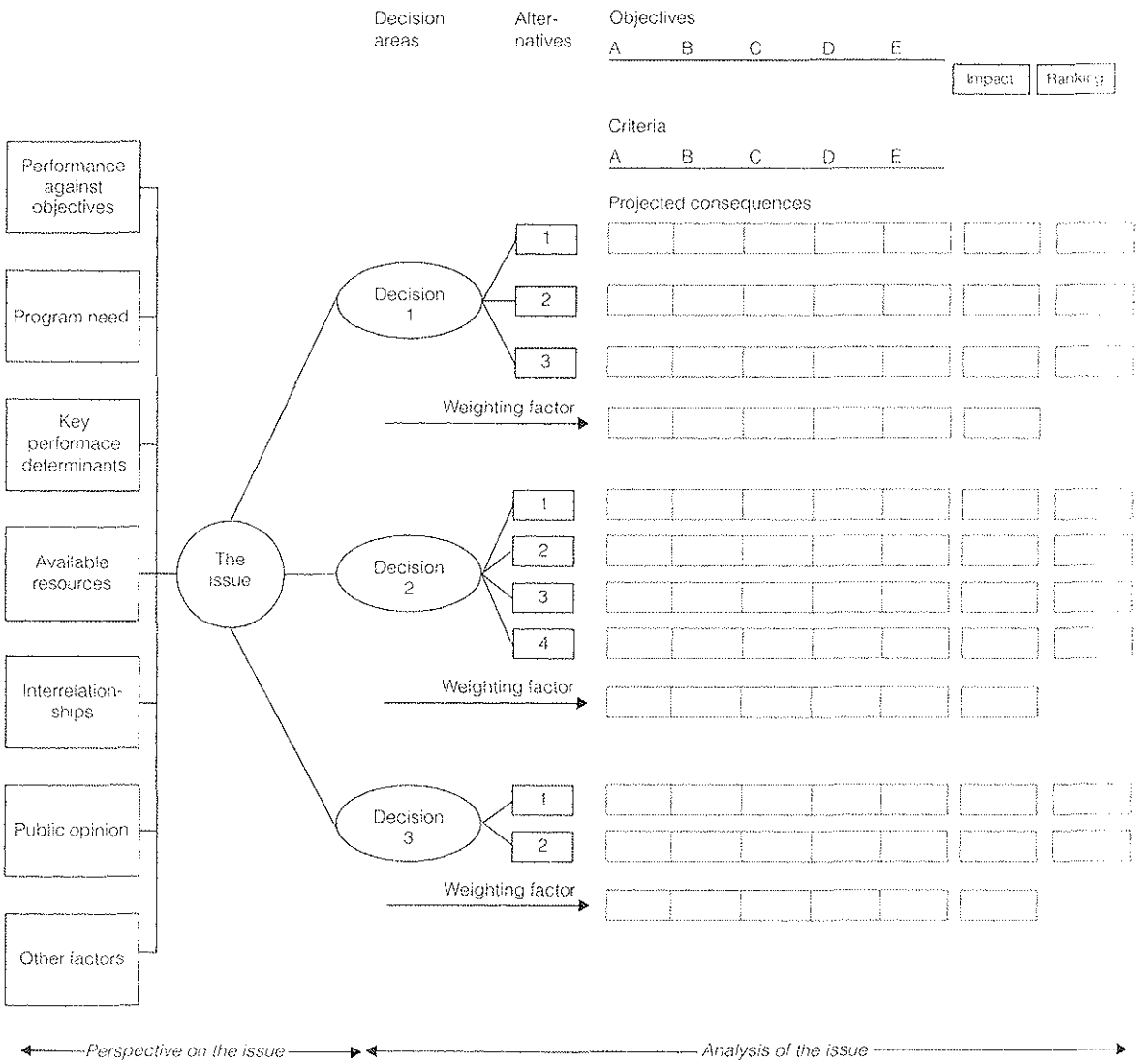
Exhibit 51 shows a diagram of the physical system for middle income housing, with the MDVs marked.

Exhibit 51 *Map decisions to the physical system*



To take just one MDV, the tenant selection policies will directly affect the number of applications received for housing, which will in turn affect the number of units the City should think about building. Accordingly, tenant selection policy is a key decision connected to the "issue" of middle income housing, and as such would have to be assessed in terms of feasible alternatives, for which they had a standard form (Exhibit 52).

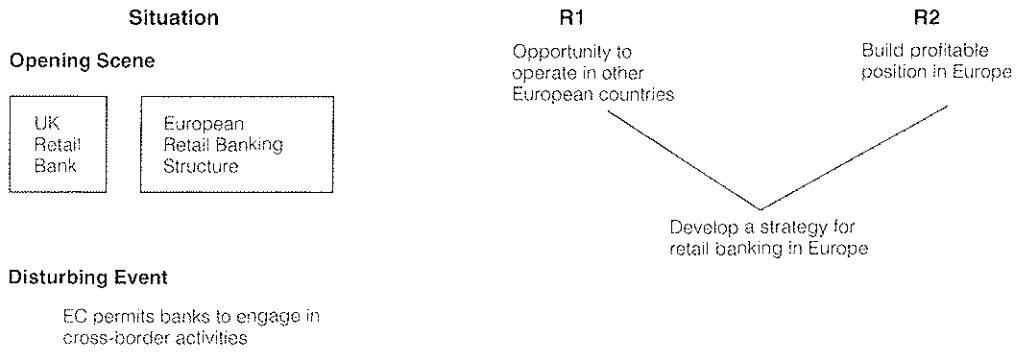
Exhibit 52 *Assess key decisions in terms of feasible alternatives*



As you can appreciate, the technique was way too complex for ordinary mortals to handle, and it was dropped. But somehow the idea of mapping the physical system and making hypotheses stuck in people's minds, so that now almost any analytical framework is labeled "Issue Analysis" and declared to be "crucial in problem solving" and "important for rapid and consistent team work." With the tendency for consultants to move from firm to firm, the resulting explanations of how to perform an Issue Analysis generally incorporate some of the original confusion.

The Misconceptions

There may be some firms that have worked out how to use the Issue Analysis process effectively in their problem solving, but I am not acquainted with them. Everyone whose process I am acquainted with has got it slightly muddled. To illustrate, here is the structure of a problem faced by a UK retail bank.



And here are the steps in "Issue Analysis" the consulting firm taught its people to follow:

1. Start with the client's question (e.g., What should our strategy in Europe be?)
2. Formulate issues and sub-issues (Questions that must be answered yes or no)
3. Devise hypotheses (The likely answers to the yes-or-no questions)
4. Identify the data needed to answer the questions
5. Assign responsibility, etc.
6. Draw conclusions, develop recommendations
7. Check the validation of the conclusions and recommendations

You can see that this approach closely resembles the one we extolled earlier, but there are also several misunderstandings that make trying to duplicate the process very frustrating for young consultants, particularly in their early years.

Beginning with the first step, the "issues" cannot come out of the client's question, which usually (as in this case) reflects an R2. They must come out of the structure of the situation that gave rise to the R1 (in this case, the nature of the client's business and its match to the European Retail Banking Structure).

Next, there is a leap in going from "the client's question" to "issues and sub-issues." I wouldn't know from where to derive these issues and subissues, nor would I know how to judge whether my list of issues is collectively exhaustive.

Then there is the confusion between issues and hypotheses. Framing an "hypothesis" as a deliberate third step is unnecessary, since it makes no difference to the

analysis whether one hypothesizes yes or no as the answer. If anything, issues come out of hypotheses, since you are hypothesizing that the problem lies in the analytical framework you are creating. But there is no insight to be gleaned by the distinction. It is easier to think in terms of issues and subissues, since they all come off, or are implied by, the same analytical tree.

Finally, firms also label as Issue Analysis the logic trees used to generate alternative actions a client could take, as well as those devised to depict the likely effect of the actions. We have seen that using logic trees to generate alternative solutions is a legitimate approach, but it is confusing to call it Issue Analysis, since these are a different type of logic tree from the ones used as diagnostic frameworks.

You will have seen that all of the techniques discussed in this section—problem definition, diagnostic frameworks, and logic trees—have a dual function. On the one hand, they make it easier to work systematically at problem solving, ensuring that you focus on the client's real problem, that you surface all of the causes of the problem, and that you come up with relevant solutions. On the other, they greatly reduce the effort required to organize and communicate your thinking in a final report. The logical structures they impose must underlie your conclusions and recommendations, and they can with minimum effort be transformed to fit the pyramid form.

The fact that many consulting reports require huge efforts to produce, and then turn out to be much less clear than they could be, more often than not reflects the fact that the thinking necessary to write clearly did not take place early enough in the process.