



# **The Idea Book for Managing Time and Handling Multiple Priorities**

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# The Idea Book for Managing Time and Handling Multiple Priorities

*“The hurrieder I go, the behinder I get.”*

*Pennsylvania Dutch Maxim*

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The ultimate goal of any project is completion.

How do you feel about deadlines? Do they cause a lot of grief in your life? Are they stress producers with little benefit to you? Or do deadlines give you a target to shoot for? Do they tell you where you stand? Do they give you direction? Do they give you the motivation and determination to achieve? Are they helping you plan your project for success?

Even though deadlines have caused some stress in your life, you'd probably agree they are useful. But deadlines aren't enough: Timelines are critical. A timeline is an essential, ongoing schedule of steps that must occur over time as the project moves toward the deadline.

The timelines in your projects provide a motivation for action. They enable you to develop meaningful plans, with mileposts along the way to chart your progress relative to a predetermined completion date. In short, the difference between success and failure in your projects will depend on timelines that work.

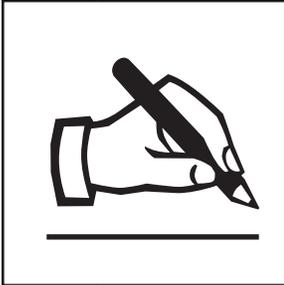
An old English proverb states:

***THAT WHICH CAN BE DONE ANYTIME  
IS NEVER DONE AT ALL.***

## Assessment: Can You Set Workable Timelines?

### Directions:

What do you already know about timelines? Indicate your agreement to these statements as follows: (3) I agree; (2) maybe; (1) no!



	Agree	Unsure	Disagree
1. I nearly always complete my projects on time.	3	2	1
2. Others willingly abide by timelines I set for them.	3	2	1
3. I know what makes a timeline work and why it can fail.	3	2	1
4. If a project gets off track, I can always get it going again.	3	2	1
5. I know when to use incentives or compliance to get results.	3	2	1

### Add your score:

- 12 or more: Old reliable, that's you!
- 11 - 8: People hesitate before asking you
- 7 or less: You're usually a day late and a dollar short

## Make It Specific!

For a timeline to be useful, it must be specific as to date and/or time. Totally ineffective phrases that don't work include:

- "Please advise"
- "As soon as possible"
- "At your earliest convenience"
- "When I get around to it"

All of these phrases provide built-in automatic excuses for not performing: It wasn't convenient. I couldn't get around to it.

A specific timeline should not only spur people to action, it should do so in a positive way. It's unhealthy when a timeline pushes you or others against such tight constraints that it's virtually impossible to achieve. Therefore,

whether you are establishing your own timelines, working with somebody else's, or setting a timeline for others, you need to recognize the three types of timelines that actually work:

- 1. A reasonable timeline.** How much work is required? How much time is available? What else needs to be done at the same time? Is this realistic and reasonable? Add 25 to 50 percent to your original time estimates to make them more realistic. Most people seriously underestimate what will be required for most projects.

If you or someone else believes the date or time of a timeline is indeed reasonable, there is every reason to expect the timeline will be met. It's a conscious decision, but the subconscious operates strongly in these situations as well. When there's a deep-down-inside feeling of impending failure, achieving the timeline becomes unlikely.

Remember, it's always more acceptable to negotiate a reasonable timeline at the beginning of a project than at the end. This helps you establish your planning effectiveness rather than emphasizing your inefficiency.

- 2. An equitable timeline.** Is this timeline fair to you if you accept? Are you already overburdened with responsibilities and tight time frames? Are you being penalized for your productivity? Often, the reward for people who get the job done is having more work thrown at them!

If it is not equitable, establish some facts here. A GANTT chart is an excellent tool to visually verify all that is being required from one person or department. This is the time to focus on facts, not personal opinions.

If people believe the timeline and the work required are fair, they can and usually will work within the requirements.

- 3. A self-imposed timeline.** No timeline will work for you until you personally commit to it. Of course, many times you set your own timelines, and presumably the time frame you have chosen is also realistic and equitable.

Do a self-assessment. Are you buying into all three aspects of a timeline at this point? If you are, this will ensure a proactive position toward achievement instead of later assuming and reinforcing a passive victim position, which is never healthy.

What about the times when someone else sets a timeline for you? The timeline will be achieved if you commit to it and essentially accept it as your own timeline. At that point, it is not somebody else's timeline: It belongs to you. It has become self-imposed. It is yours.

## Getting Commitment From Others

How can you get someone else to accept the timeline you set? The same process must take place. The timeline must be reasonable and it must be fair for the other person to decide to take ownership. It is now self-imposed, and should be achieved.

To get the other person to that point, here are a few key questions you can ask to help establish your position:

- “Does this time frame seem realistic to you?”
- “What obstacles do you see that might prevent you from achieving this deadline?”
- “What are some reasonable intermediate goals we could set here?”
- “Is it fair for me to assume you’re going to be able to do this?”
- “Can I count on you to have this back to me by (date)?”

A key point to remember here:

***A PROJECT DOESN'T JUST GET SIX MONTHS BEHIND...IT SLIPS DAY BY DAY, WEEK BY WEEK!***

That’s why tracking each project step-by-step with a flow chart is essential. (A detailed discussion of flow charts appears later.)

## OK, But Something Came up on the Way to Completion

The most realistic, fair, self-imposed timeline can still encounter unexpected difficulties as events develop. Because other priorities arise, suddenly a project that was going so well can be placed on the back burner. A once-realistic timeline is now a huge, negative, demotivating factor. Somehow you’re suddenly way off the track, and you’re not even sure how you got there.

You have ten options to get a sidetracked project back on course. Choose one that works to get you rolling again.

1. **Renegotiate the timeline.** Perhaps all you need to recover momentum is to get some relief from the timeline. It may be possible for you to go back to the person to whom you committed yourself and get a change or extension, particularly if the circumstances make this reasonable. Perhaps now you will find out if the first timeline you

committed to is the real timeline or simply someone else's wish list. With a timeline change, you're no longer behind the program; and you're rolling again.

- 2. Re-examine the timelines within the project.** If you're seriously behind schedule, look at your flow charts. Were you able to build a flow chart with a cushion or two in the schedule? Or if you have used up the cushion already, what individual step can be shortened or sped up? Maybe there's a step that involves the mailing of a draft of a report to someone else. This might be a great time to send it by overnight delivery, put it on the fax machine, or e-mail it.
- 3. Eliminate the nonessential.** Are some steps in your plan ones you thought would be nice to have, but aren't really critical to the success of your project? This could be the time to eliminate them. Does it have to be this big? Maybe it's time to downsize a little. Perhaps the final result won't be quite as elaborate, but cutting out a few frills may be just the thing to get your project going again.

This could be a way to provide help for the perfectionist. Some people, when given more than enough time to complete a project, fill all the time by adding nonessential elements, which is actually a form of procrastination. By consciously eliminating nonessential items before you start, you may be able to set a timeline that is tight enough to force the perfectionist to stick to the project. The project never gets off track in the first place.

- 4. Expand Your Resources.** What resources do you have? Is it possible to get any more? More people? More equipment? More money? More ideas? What would make a difference here? There's almost always a point in any project when so much time and money has already been invested that spending a little more is worth it. For example, construction companies often get this kind of motivation through the agreement (in the beginning) to substantial daily penalties for each day a project runs past its agreed deadline.

The incentive can also work the other way. The city of Seattle promised a company \$18,000 per day for every day it could beat the deadline for completing a storm-damaged bridge over Lake Washington. That's the amount the city calculated it cost each day not to have the bridge operational.

- 5. Substitute something else.** Is there a certain item you need for your project that you just can't seem to obtain? Would something else that is already available work as well? Would the substitution make any qualitative difference in the finished project?

Many products have come about because of substitution. This could

be an asset defined by a liability. The story behind the “Post-It” note paper is a classic illustration. Ask 3-M if it was worth the millions of dollars that have been earned because someone found a substitute use for a glue that didn’t stick!

- 6. **Alternative sources.** Where or how else could you obtain what’s holding you up? Is there another source or another way you could do it? A supplier who’s been asking for a chance to do business with you? When can your supplier get the materials to you? Is it already in their warehouse? What if you got it yourself instead of waiting for a delivery?

This philosophy is well explained by Roger Von Oech, author of *A Kick in the Seat of the Pants*, who suggests looking for another right source or solution. If you ever found the best way to do a job, how would you know you had found it? Your second choice could actually end up being better than your first!

- 7. **Accept partial delivery or shipment.** Suppose your entire mailing is being held up because the 10,000 envelopes aren’t available. Call the supplier. Are any of the envelopes printed yet? 2,000 of them? Great! You’ll accept a partial delivery now to give you something to start with while your supplier finishes the order.

- 8. **Incentives.** Here’s where the human-relations side of getting your projects back on track enters into play. What kinds of rewards, either for yourself or for others, might spur renewed commitment to the project? The “carrots” of life are sometimes strong enough to do a job nothing else can do.

- 9. **Compliance.** Likewise, the compliance factors can be effective, too. Sometimes the avoidance of bad consequences is an even stronger force than the pursuit of good consequences.

In working with people, consider both the incentive and compliance options. April 15 is a good example of this. Think about the lines of people at the post office at midnight turning in their tax returns! Yet, many tax preparers offer the early-return incentive of “get your refund sooner.” The same date provides incentive for some people, and compliance for others.

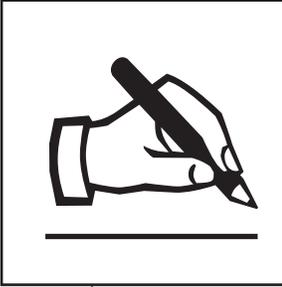
- 10. **The All Out Question.** If your life depended on it, what could you do to complete the project on time? Identify and evaluate all options; then implement suitable ones based on the nature of the consequences of missing your deadline.

***IF YOU SET THE RIGHT KIND OF TIMELINES TO BEGIN WITH, THERE ARE MANY WAYS YOU CAN GET YOUR PROJECT BACK ON TRACK!***

With proper tracking, even the most complicated project can be modified before the obstacles/delays become critical time elements. Imagine you're a scientist working with NASA on the Space Shuttle program. You are the person responsible for planning the next launch. You have all of NASA, its suppliers and resources at your disposal. Any person you ask will do exactly what you want him or her to do. You don't actually have to do any work yourself on the project. You're responsible for only one thing: Developing and implementing a plan covering all the steps that must take place before the launch date.

Sound like an easy job? How many factors do you think you'll have to consider? Let's see, there's the weather. The orbits of the satellites your shuttle is going to connect with several thousand miles over the earth. The selection and training of the astronauts. The experiments that will be conducted during the flight. The landing site, the people and equipment that need to be there. The actual rockets that will launch the shuttle spaceward. You'll need to take care of the newspeople who will report on the event and control the crowds of spectators. Is the job big enough for you yet?

Of course, these factors only scratch the surface of the literally thousands of steps and thousands of people who'll have to work on the project, in complete coordination, so that everything comes together at one time and the launch is a complete success. If you're ready to turn in your resignation before this job even starts, you'll understand why the world owes the space program a debt of gratitude for the flow charts and tracking processes that were developed to enable just that kind of activity to take place successfully.



### Assessment: Flow Charts

Read the statements that follow and circle the number that best describes your response: (3) agree; (2) not sure; (1) disagree:

	Agree	Unsure	Disagree
I currently know the status of all my projects	3	2	1
It's easy to communicate jobs and deadlines to others	3	2	1
If a project falls behind, I know it right away	3	2	1
If a project falls behind, I know why it happened	3	2	1
If I have time problems, I always know well in advance	3	2	1
I regularly use flow charts in planning projects	3	2	1
I usually think backwards when I plan out a project	3	2	1
I build a cushion in my schedules to allow for emergencies	3	2	1

#### Interpretation

- 19 or more: Pass the big jobs your way!
- 18–13: With a little luck, you often get it done, and on time.
- less than 13: People shouldn't put their hopes or money on you!

## The Benefits of Flow Charts

The benefits of flow charting to track projects and priorities are numerous.

- **Show the interrelation of activities.** A picture is truly worth thousands of words. As you can see, graphic techniques help others visually understand why a certain step is important and how it relates to other aspects of your project. Without a flow chart, it is often very difficult to explain the necessity of a certain step or timeline.
- **Aid in communicating with others.** The importance and value of dates and delegations is underscored by the flow chart. Once people see how they are part of an entire picture, they're more likely to understand why it's necessary for them to complete their portion of the project within the deadline they've been given.

One of the best communications benefits of flow charts occurs when you have a peer or superior who comes up with great last-minute ideas like "How about pushing the completion date for this project up by one week?" Don't argue, but don't accept! Immediately get out your flow chart and use it to communicate what needs to be said. If the new deadline is important enough, what other concessions need to be made? What other project needs to be delayed? "I'll be happy to get this done seven days earlier, if you can help me figure out where I can make up the time." This is an opportunity to negotiate with clear and open communication.

Other benefits of using flow charts are:

- **Flow charts help you keep track of large projects with many steps.** It's very difficult for anything to be overlooked when it's a part of a large plan displayed in a flow chart. Perhaps only one person has the complete plan and knows all that is going on and who's doing what, but nothing is lost on the master chart.
- **Flow charts help you turn large steps into small ones for delegation.** Perhaps you can't totally turn a phase of a project over to someone else, but as your flow charts divide the project into specific, individual steps, it is often easier to identify particular activities that can be delegated. Flow charts also demonstrate the value of what's being assigned, helping you delegate more effectively as you can show each individual just how their part relates to the entire project.
- **Flow charts help you reduce time and cost by identifying trouble spots as they occur.** Never again will you suddenly have to divert large groups of people, or great amounts of money, to deal with unexpected crises. Big problems simply don't sneak up on you with a well-planned flow chart. You can effectively manage your time, your people and your money in ways you never thought possible!

- **Flow charts give you immediate knowledge of the impact on your deadline.** If a step takes two days longer to complete than planned, you can look at a flow chart and know instantly if this is a problem and, if so, how much a problem it may be. Did the delay occur on your critical path? Is the delay creating a new critical path? You won't have to guess — you'll know.

Thanks to flow charts, you will never get close to the deadline for a project, discover you're three weeks behind schedule, and not know how it happened. In fact, when a project is finished, review the entire flow chart, analyze what happened and why, and retain this knowledge to make the next flow chart even more accurate and effective!

A word of caution: The first few times you develop a flow chart, it may have some weaknesses. If you've never done a certain project before, some of the dates may be guesswork. That's why you can learn so much from flow charts you have finished, and why your ability to plan with accuracy will improve the more you do it.

## Project Management/Tracking Software

The bigger and more complex your project, the more useful a computer program can be for you. Computer software that can handle flow charts is abundant and generally very good. Some are industry specific; many are universal. All are constantly being replaced by newer, better models with more bells and whistles.

With a project management tracking program, you can continually update your charts with input as activities are completed and deadlines are met or missed. The revised version is always as clean and neat as the original. Most programs create a "red flag" as deadlines near or problems develop. Some use information from multiple flow charts to point out potential problem areas. For example, if, on three different flow charts, you assigned 84 hours of work to one person in one week, some programs will alert you to this problem.

Determining which software package best suits your needs will require an in-depth evaluation of your project complexities, preferred methods, and the capabilities of the various programs. Some areas to consider include:

- Connectivity with various database platforms
- Number of projects to be tracked
- Number of detail activities per schedule
- Use of multiple schedules and subproject schedules with one project

- Translators for other project management products
- Integrated usage and costs in real time
- Technical, span, and baseline progress modes
- Types of analyses used (CPM, PERT, Resource Loading, etc.)
- Forms of data accepted and displayed (bar charts, histograms, network diagrams, tables, PERT, GANTT, etc.)
- Roll schedules for executive summaries
- Networking capabilities

The list could go on ad infinitum. Check the Internet for the most up-to-date information. A search by “Project Management Software” will generate an abundance of hits, or start with any of these producers of project management/ tracking programs.

ABT Corporation	Projectware	TimeScope
MicroPlanning International	Safari Software Products	Kidasa Software Inc.
Microsoft	Allegro Products Inc.	Artemis
Advanced Management Solutions	SoftLanding Systems	Primavera
Creative Technology Laboratories	IntraPlan	Pictdata Productions

## **Three Flow Charting Giants: PERT, CPM, and GANTT**

### **How the PERT Process Began**

The PERT chart owes its beginnings to the Polaris missile program of the mid-1950s. The basic concepts devised by some brilliant minds at that time are now used by people everywhere, in all walks of life. By the end of this chapter, you will be able to use these concepts, too.

When multiple projects have to take place, involving multiple steps and people, you can turn to the information presented here to bring it all under control. Once you learn it, it’s not only productive, it’s fun!

### **A Simple PERT Introduction**

PERT is an acronym that stands for “Program Evaluation and Review Technique,” the lengthy name originally applied by the Polaris scientists to their tracking process.

A PERT chart, even the most simple one, involves four elements:

- **Circles** — in which completed activities are written
- **Lines** — showing the direction of progress and indicating work in progress but not yet completed
- **Dates** — completion targets, i.e., deadlines
- **Names** — of people to whom various responsibilities have been delegated

There's one other element that distinguishes the PERT chart from other methods of planning:

Not only does this process offer new methods of presenting the planning we have done, it forces us into a new thinking pattern as well! In a typical planning process, we ask ourselves "Where am I now?" and then proceed to think in a step-by-step sequence until we eventually reach the end. PERT reverses the process. In PERT, we do our thinking in reverse.

The principle is more logical than it might sound at first. For example, have you ever watched professional golfers on television? Good golfers nearly always think backward. A professional golfer approaches the tee to play a par-5 hole, that is one in which the target is to play in five strokes or fewer. These are the longest holes on the course, which is why more strokes are required. But, to a pro, the long holes always represent the best chance to go under par, to play the hole in four strokes, known as a "birdie" instead of five.

Before that golfer ever hits the ball, a backward thought process occurs. "Where is the flag located on the green today?" Then: "Where should my ball land on that green to give me the best chance of a reasonable putt into the hole on my fourth stroke?"

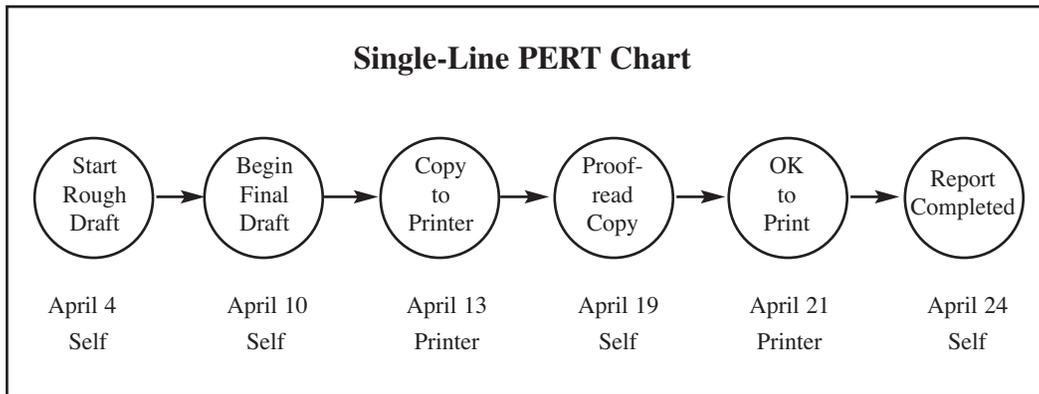
Once that question is answered: "Where does my ball need to end up on the fairway to give me the best approach shot (the third stroke) to that part of the green? Where does my second shot need to be hit from if that's where I want the approach shot to be? What club do I need, and how should I drive the ball off the tee, to put myself in that position?"

Backward thinking really does work! There are some other advantages, as well:

- Thinking backward makes you work a little harder and concentrate more.
- Sometimes you can see things going backward that you miss going the other way.

**Try Something Easy First**

A simple illustration can get you started; a more complicated one will follow.



The first illustration is a single, straight-line chart. It is made up of only one series of steps leading to a completed project, each one taken in order with nothing happening elsewhere. The diagram you see above already has the information filled in. This project is a report, with a deadline date of April 24. The last step, the right-hand circle, is labeled: “Report Completed.” The deadline is shown, and we’ve indicated self as the person responsible for this step.

How did we get all the rest of the information? By working through the project backward. The question you always want to ask is: “In order for this step to be accomplished, what has to happen just before that?”

This particular report, we decided, is so important we’ll secure the best production help available. We’re going to have the copy professionally typeset and printed, and thus, the last step before completion reads: “OK to Print,” meaning we’ve given the typesetter permission to proceed with printing the final manuscript. We delegated the printing to the printing company, of course, and the company informed us it needs three days after getting the typeset manuscript to provide us with the finished product. Therefore, the date for giving this “OK to Print” must be no later than April 21, still leaving us three days to get it on the 24th when we need it.

What had to be done before we could give the press an approval to run? Possibly a lot of things, but we’ve simplified this example down to “Proofread the Copy.” We delegated this step to ourselves, once again, and determined it will take two days to complete this step. Therefore, our starting date for this activity must be no later than April 19.

As you can see, the only completion date on the PERT chart is the final date at the right end. All the other dates are start dates. You can infer from this that the completion date for the previous step is the same as the start date for the next step!

We know the dates we're using are going to cross over weekends. To make it easier, we'll assume no weekends and all working days. In creating your own PERT charts, be sure you account for weekend days and holidays. If you're using a tracking software program, it should do that automatically.

Once again, thinking in reverse, what has to happen before we can start proofreading? Well, at some time the copy has to be typeset so we can proofread. Let's call that the previous step, to be done by the printer, who told us to allow six days for this step. This means, as you see, the copy must go to the printer (the start date) no later than April 13.

The copy has to be written. Do you think we ought to have two drafts? We did, which is why the next step to the left reads: "Begin final draft." We allowed three days for finishing the final draft. We must begin, therefore, on April 10.

Finally, before the final draft can begin, there's going to be a rough draft. We've estimated six days to do this. We have to start on April 4 to reach our deadline of April 24 for the finished product.

We now have this entire project broken down into a straight line of six steps, each with a starting date and a person responsible assigned to the step. Does this look like it would work? Does it seem reasonable?

Two interesting points here. Suppose we were to put our plans for this report down on paper as we have done, working our way back to the start date and determining we needed to start on April 4, but today is April 6. We have a time problem. But there's very good news. We found out that we had a time problem at the very beginning of the project. Unfortunately, we usually discover a time problem at the very end. When we know about it right away, we have many more options available to us. What could we do today to make up the two lost days in the schedule? Could we delegate out some more work? Could we delay some other project to give us more time on this one? If we got more help, would that make a difference? Could we go to the person who will receive this report and get a two-day extension?

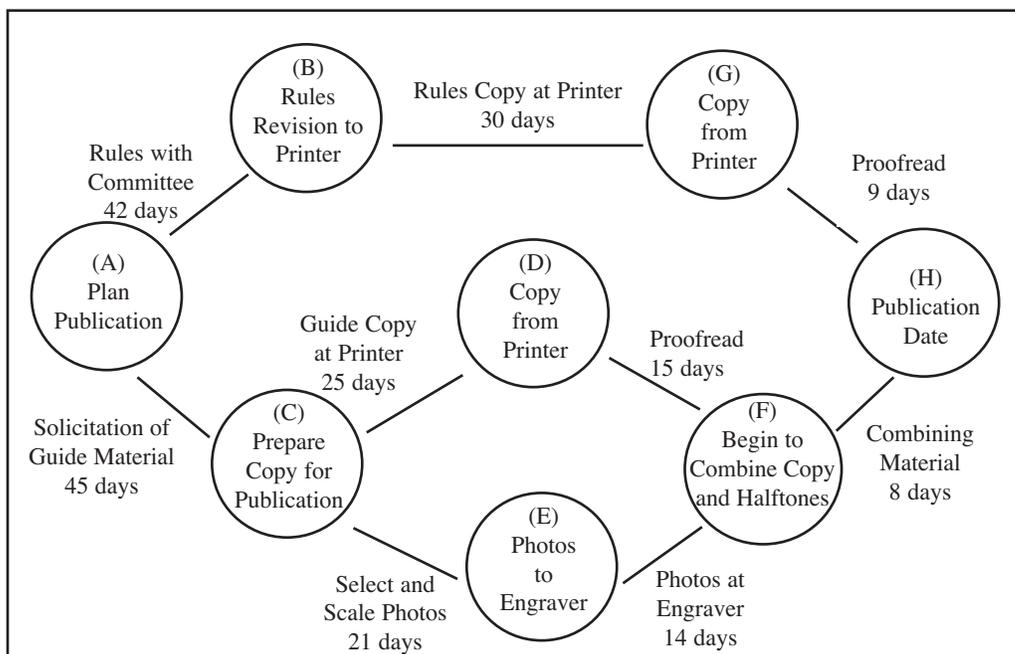
So, even when you have a problem, it's easier to overcome if you've done this kind of planning up front.

Another important thought: Be realistic. Do yourself a favor, in fact, and even try to build a little extra time into your plan. It's frustrating when things don't go as they should and you end up with time difficulties. So add some cushion into your plan.

Before moving on to the next illustration, you might want to complete the PERT Personal Project at the end of the chapter to get familiar with the process.

**Time to Move on to a Bigger Project**

For our next example, we'll use the production cycle of one of the books published by the NCAA: Official NCAA Ice Hockey Guide. This was a combination of two books, actually: the playing rules and a fan publication containing schedules, records, stories and photographs. Once again, the information is already filled in so you can see the steps we'll describe here. Also, although we worked the planning process through from right to left once again, it is easier to explain going the other direction, so that's the way we'll go.



The first project deadline given was the publication date (H on the diagram): The book always had to be out by late September because officials' clinics were held then and the season began by early November.

On the left end is the planning time (A) for the publication. We already know the rules will make up half the book, so our first step was to make up workbooks for the committee to use at its annual rules meeting (this occurs along the line running from A to B, where changes to the rules will be made).

In the meantime, we must send out mailings to solicit all the other material for the Guide part of the book. From each member school we need last year's records, next year's schedule, photos, pre-season prospects, etc. This process is going on along the line from A to C.

Finally we reach a deadline for information, after which we will not be able to use material (C). Once that deadline is reached, we begin to prepare copy to send it to the printer (C to D).

While the printer has the copy, however, there's still a lot to be done. We can begin selecting and scaling the photographs to use in the book (C to E). Once this job is done, we will send the photos to the engraver to make halftones for publication (E to F).

Meanwhile, typeset copy is starting to come back from the printer, so proofreading is begun (D to F). At the junction of these two lines (F), the proofreading is completed, the halftones are on hand, and along the line from F to H we are combining this material to finish the Guide portion.

Don't forget the rules! Once the rules get back from the committee (B), copy will need to be prepared and sent to the printer for revision (B to G). When the revisions are back from the printer (G), there is still a little proofreading to be done on these (G to H).

If everything works out as planned, at letter (H) all the elements of the book come together and are completed, at which point the printer is given the OK to print.

As the previous flow chart displays, even when a lot of different things have to be going on at the same time, each can be tracked with the PERT chart.

## **The PERT Worksheet**



Unless you want your PERT chart to be a big, useless mess of lines and circles, it helps to do some preliminary thinking about just what is happening — what steps might occur and which activities must precede each step in the process.

A linear worksheet is a good way to start, because it allows for lapses in thinking and also provides an easy way to assemble the material in a logical order prior to drawing out the PERT chart.

**NOTE:** Before beginning the following exercise, copy the PERT Worksheet so you can use it again and again.



**Exercise: Developing a PERT Worksheet**

**Directions:**

1. At the top of the sheet, write in the name or description of the project you're planning and put today's date (or your anticipated start date) in the blank.
2. At the bottom of the page, write a detailed description of the completed activity — what it will be, what it will look like, or anything that gives you a clear picture of what form this project will take upon completion. If you know the deadline for the project, place it in the blank provided.
3. Complete the Activity column by starting your list at the bottom of the page, writing in the final activity required before the project is completed. Then, using the backwards-thinking process, work up the page, listing the activities in reverse order. You may not use all the blanks if your project does not require too many steps. Remember the question you'll want to keep asking as you plan backwards: "What prior activity or activities must be completed before this activity can begin?"

**NOTE:** No doubt you'll occasionally overlook some steps; the blanks in the chart are wide enough to allow you to insert other ideas that come to mind later.

4. Start at the top of the list and letter the activities alphabetically along the left side, beginning with "A" as the first activity. If you get through the entire alphabet, continue with "AA," "BB," etc.
5. Fill out the "Preceding Activity" column, again starting at the bottom of the list. Use the letter you have assigned to each activity to identify it, rather than writing the activity out again. If your thinking has been fairly clear and complete up to this point, much of this step will be easy. For example, if the last activity is "T," probably the activity just above it on the list ("S") would be listed as the preceding activity, and you'd write "S" in the blank. Sometimes more than one activity must precede a specific step, which will be represented by a branch in the PERT chart, so you may write more than one letter in the preceding activity column.
6. Estimate the time required for each activity, and put the number of hours, days or weeks in the Time column.
7. When you have completed all parts of the PERT Worksheet, you will be able to take this information to draw a PERT Chart, using lines and circles to show all the activities visually.

## PERT Worksheet

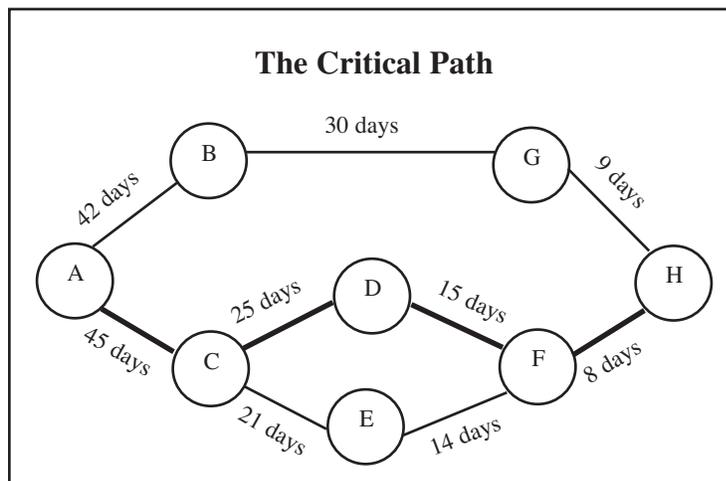
### The Critical Path Method (CPM)

The Critical Path Method was developed separately from PERT, but as it is used today, is usually not actually a separate flow chart. Instead, it becomes a part of a PERT chart. The Critical Path is defined as:

***THE ACTIVITY LINE THROUGH A PERT CHART THAT TAKES THE LONGEST TIME TO COMPLETE IS THE “CRITICAL PATH” ON YOUR PROJECT.***

Considering the example we did earlier (condensed version below), there are actually three ways (paths) by which we can go from A to H, from beginning to end. We can go A-B-G-H, we can go A-C-D-F-H or A-C-E-F-H. By applying the days required for each activity-line segment in each path, we can determine the critical path.

We’ve condensed the actual time each of the steps in the chart would take in this simplified version. By adding the segments A-B-G-H, we come up with 81 days. Going A-C-D-F-H totals 93 days, while A-C-E-F-H adds up to 88.



Therefore, in the illustration, the Critical Path is the A-C-D-F-H — the longest path. We’ve drawn this line heavier than the others to demonstrate its importance. This is the critical line because we cannot afford to lag behind on this line. Any delay along this line will result in a delay in completion, unless we are able to make up the time later in the project.

If one step along the A-B-G-H path takes a day or two longer than we planned, it’s not any real problem, because we had 12 days to spare along this path. However, this doesn’t mean we want to intentionally waste any days. If we suddenly found ourselves 13 days behind on the A-B-G-H path,

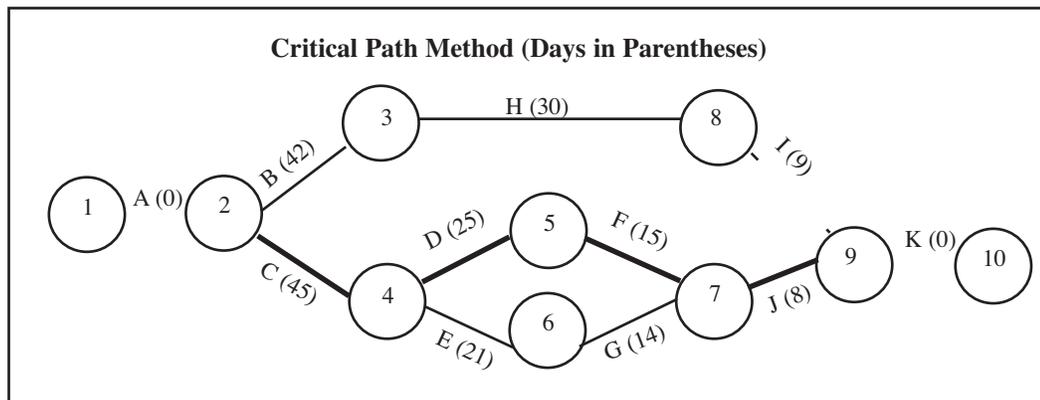
or six days behind on the A-C-E-F-H, it would be a problem. Adding 13 to the original 81 days on A-B-G-H makes 94. Adding six days to the original 88 days on A-C-E-F-H is 94. Either event would mean there is now a different critical path, and the completion date will be pushed back if something isn't done.

The critical path's most important function is to help you establish your priorities. Any activity along the critical path is a high priority. Each day as you complete your 15 minutes of planning, any flow charts associated with your activities need to be present. Determining where you stand along each path enables you to assign true priority rankings to the items on the daily action list.

In developing the critical path, please be realistic: A plan with no cushion is doomed to failure before you begin! Try to allow some extra time, and make your time estimates conservative. Remember, you don't want the plan to control you — you control the plan.

### A Separate Critical Path

If we were to begin by drawing out a critical path only (without an existing PERT chart), we would go about it a little differently. The illustration below shows the same activities as the preceding PERT chart drawn in the Critical Path Method:



As you can see, the CPM approach puts the greatest emphasis on the process of the activities, rather than on the completion of the activities. In the first illustration of the Ice Hockey Guide plan, the completion events were listed inside the circles, with deadlines and delegations next to the circles. The lines between the circles represent the particular activity going on, but not yet completed, and we merely added the total number of days between deadlines and indicated them along the lines, to come up with our total days for each path.

In doing only a Critical Path, then, the major focus is on the activities, not their completion, and how much time each step will take. Therefore, the information we need will appear along the lines, not inside the circles. The circles are numbered only for identification of start or finish events, not for the activity itself (the activities, as you see, are lettered). In addition, there is sometimes the appearance of an “instant” activity that takes no time at the merger of various paths along the project.

### The GANTT Chart

The GANTT chart, named for its creator, Henry Gantt, also gives us a visual display of activities associated with a project, but presents the information in a different fashion.

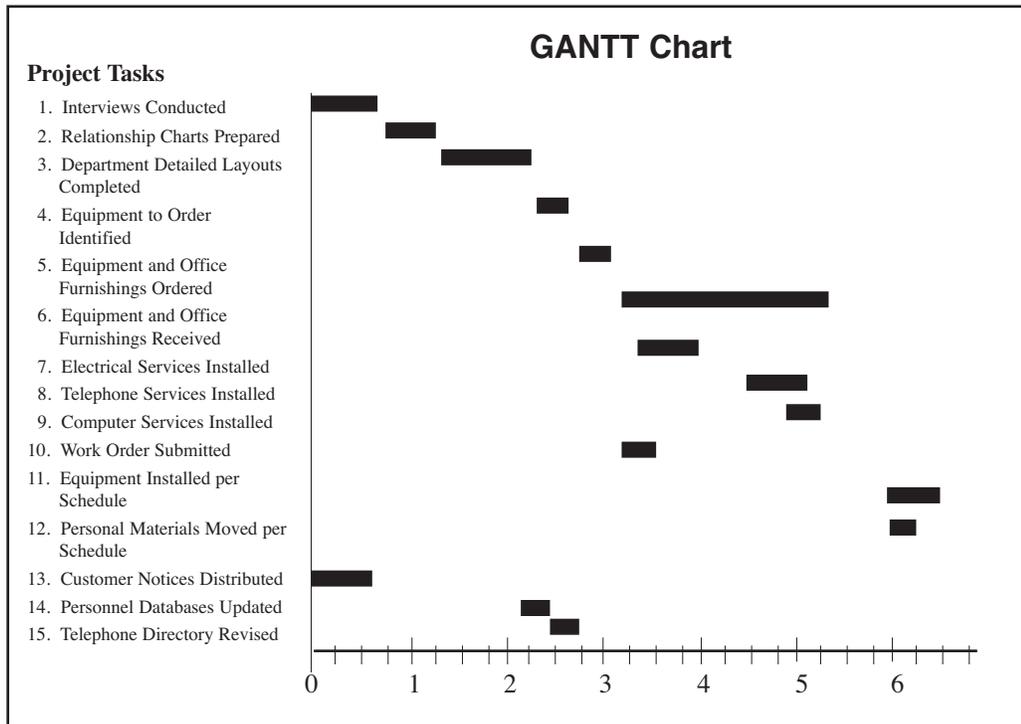
Possibly the main weakness of a PERT chart is that the focus is on an activity, rather than a time line. This doesn't mean you can't control time using a PERT chart, but sometimes impending time concerns aren't as clear as you might like them to be. For instance, imagine you're looking at a PERT chart consisting of eight parallel steps at this phase of the project, and today is August 26. How can you identify quickly just what is the most important thing to be working on today? You can usually figure it out, but this is often easier done with a GANTT chart.

The GANTT chart differs from PERT; a GANTT chart is a time line, not an activity line.

Look at the following illustration. As you will see, the GANTT chart is a bar chart in which the separate activities are listed along the left side, with an actual time line across the bottom. This particular project (an office relocation) is planned to take just a little over six weeks to complete.

In doing the plan this way, the many steps are listed. Then bar lines are written in, not only to show exactly how much time each step should take, indicated by the length of each line, but also to demonstrate exactly when this step needs to occur, indicated by the position of the line relative to the timeline at the bottom of the graph.

The example here is of a completed chart, because the bars are solidly filled in. When the GANTT chart is begun, the bars are empty rectangles. They are filled in as progress is made.



You can learn much about how this project has been planned, and how realistically, by considering some of the information on the chart. The first six numbered steps seem to represent a series of events, and one does not start until the previous step is completed. In analyzing further, you'll see this makes perfect sense; after all, you would want to interview people to learn what they wanted before you could determine who needed to be located next to whom in the new office setup for maximum work flow and communications efficiency. You can't order the equipment until you've decided what to order. Actually, these first six steps could also be expressed in a single straight-line PERT chart.

Note a few other important features of the GANTT chart. Step #13 reads "Customer Notices Distributed." As you can see, this is scheduled at the very beginning of the process. You don't have to know what the layout of your new office is going to be to let your customers know you're going to move, your new address, phone number and the anticipated move date. In fact, the sooner they know, the better.

In the middle of the chart are several related steps. A work order is submitted (#10) before the electrician comes in to install electric services (#7). Once electrical services are in, it's possible to install the telephone service (#8). When the phones are in, it is possible to install the computer services (#9).

What if the electrician calls and says that, because another job has taken longer than expected, work in the office can't begin until two days after the scheduled date? Looking at the chart, you see a four-day gap between steps 7 and 8. You can tell the electrician you're still all right, because there is some cushion built into the chart. You might not tell the electrician there are four days, only that you're adding one day to the completion date.

Likewise, at the very end, there is another four-day gap during the sixth week when apparently nothing is scheduled. Great planning! This is to allow for some unexpected delays that still won't affect the actual completion date for the project that, because of the termination of the old lease, might be inflexible.

By the way, you may not actually want to show this slack time in any external distribution of this flow chart. Work has a tendency to expand to fill the time available, so even though there are four extra days scheduled in here, it may be unwise to show this cushion to others.

With a GANTT chart as part of a daily planning session, you have clear pictures of just where you are on the calendar and where you need to be based on the project you're undertaking. On any given day, the bar lines will be empty, filled or partially filled, depending on what has actually been done. In determining what's the most important priority for the day, it may well be the one that has fallen slightly behind schedule, particularly if the other steps are progressing well.

Once again, the flow chart's visual information helps in decision making as we plan our day!

The GANTT chart is not without its drawbacks, which is why it's not used as often or as widely as PERT. While it is excellent at demonstrating the time orientation of activities, it simply does not do a very good job of showing how the activities relate to each other in terms of what will precede or follow a specific activity on the chart.

In addition, changes on the GANTT chart are much more difficult to include once the chart has been completed. The effects of missed deadlines or unforeseen activities cannot be easily incorporated. A PERT chart can be easily modified because the dates and time lines are not the critical function of the chart.

## Which Chart Should I Use?

Good question! Which one seems to be more comfortable for you? Which chart will better communicate to others the priorities and deadlines? Which one works best for your kind of projects and activities? Perhaps the answer will be both charts. Most project-management software available today is capable of giving us the information in either form. And, depending on who might be using the chart and why, maybe both are better than either one.

Many companies use both charts: a PERT chart in making proposals and selling their clients because it gave such a clear picture for someone outside the daily activity of the project; and the GANTT chart for their internal planning, scheduling and communication.

## Summary of Advantages: PERT and GANTT Charts

### PERT Chart:

- Clearly shows relationships between activities
- Easily understood by someone outside the project
- Deadlines and delegations can be specifically indicated next to each step
- Critical path may be easily identified and shown for planning and prioritizing

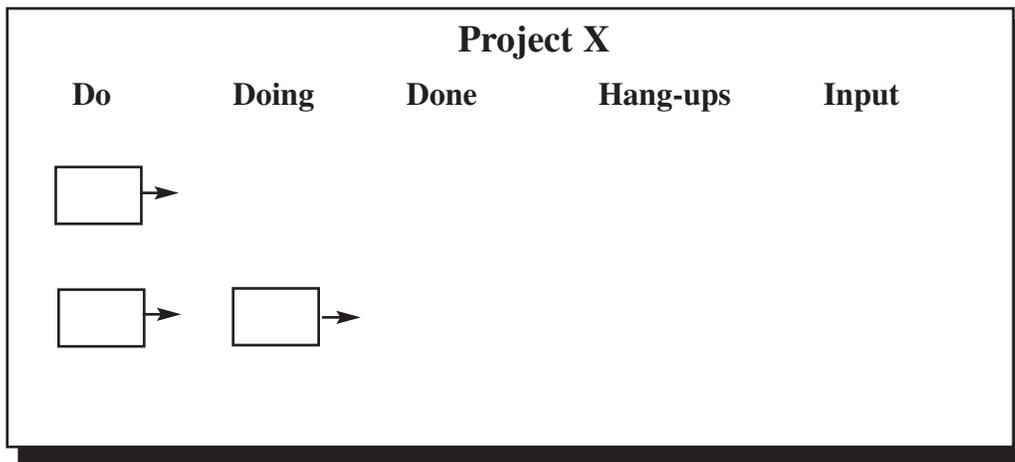
### GANTT Chart:

- Timeline at bottom shows relative length of project activities
- Empty bar lines can be filled in to indicate progress to date
- Unscheduled time readily identifiable if needed to be used
- Vertical line representing current date clearly shows potential problems

## The Simplest Tool of All — The Briefing Board

A very simple — and less precise tracking mechanism for personal or noncritical job-related projects is the briefing board.

A briefing board is mounted on a wall for quick, easy, frequent visibility. This is what a briefing board looks like.



Each header (*Do*, *Doing*, *Done*, *Hang-ups*, *Input*) is placed on a separate 5 x 7 card. Under *Do*, post all the component tasks of the project in question. Post each on a separate 3 x 5 card so they can be moved individually and independently of the others throughout the process.

Once you've planned out the project and posted each *Do* step, get started. As you begin working on a component, move its card from *Do* to *Doing*. Over time, as components are completed, these cards are moved over to *Done*. At a glance, you can see what's yet to be started, what's in process, and what's been finished.

Sometimes you'll find a card stays under *Do* too long. This may indicate you have some type of a hang-up with that step. Maybe you don't know where to start or where to get the necessary information. Take a moment to determine what your hang-up is, write it on a card, and post it under *Hang-ups* in the row with its *Do* card. Every time you look at the board, your mind will automatically be put to work in search of a solution.

The *Input* column is for your flashes of brilliance that occur at inconvenient times. Suppose you are hard at work on another matter when the solution to your *Hang-up* pops into your head. Simply jot it on a card, post it under *Input* and continue with your other work. When time permits, you can go back to the briefing board, pick up your idea, and follow through. *Input* cards could also come from others who have ideas for your project. What a great way to get additional input without rearranging everyone's schedules to have a meeting!

You can use one briefing board to track multiple projects. Simply color code the component cards for easy visual tracking. Or color code the cards according to individual responsibility: John's are blue, Jane's are yellow, etc. Be creative.

The briefing board obviously lacks the precision and sophistication of the other tools presented here, but it can be an extremely valuable addition to your tracking arsenal, especially for personal projects.

## Murphy's Laws of Project Tracking

To maintain a sense of perspective and humor, keep in mind these Murphy's Laws of project management.

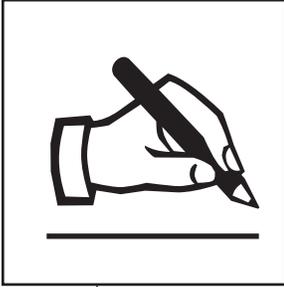
1. Projects progress quickly to a 90 percent completion factor, and then stay at 90 percent forever.
2. When things are going well, something goes wrong.
3. If the content of the project changes often, the rate of change will always overtake the rate of progress.
4. A poorly planned project will take three times longer to complete than expected; a well-planned project only takes twice as long to complete.
5. Members of the project team will ignore your progress reports because the reports portray the limited progress that has been made.
6. When you know you've thought of everything, you haven't.

<b>Making It Work</b>		
<b>Concern</b>	<b>Reason</b>	<b>Strategy</b>
Project not in control	Project too big	Plan and display it using a flow chart
Missing activities	Overlooked in planning process	Think backward for better concentration and clarity
Difficulty with people not finishing jobs by deadline	Haven't bought it, don't understand importance	Demonstrate with flow chart relationship of activities
Activity falls behind schedule	Amount of time not properly estimated	With early warning, use flow chart to negotiate changes
Constant pressure to finish steps or project	No float time in flow chart	Estimate generously, build cushions into time schedule
Flow charts messy and disorganized	Steps overlooked or not anticipated when planning	Complete PERT worksheet before making flow chart
Many activities appear to be top priority	True priorities not known	Identify Critical Path of project to know priority
Difficulty in seeing time relationships of steps	Base of PERT chart is not time, but activity line	Develop GANTT (bar) chart to better see time connection
People don't respect the timeline	Haven't "bought in" yet	Make reasonable, equitable suggestions and ask questions for agreement
Timeline doesn't work	Something is missing	Better planning use flow chart
Project gets bogged down	Something else took top priority on the list	Make it top priority again take one of the nine steps
Job is held up	Lack of materials	Accept a partial delivery

## Putting Timelines, Deadlines, and Project Tracking to Work in Your Life

### WORKSHEET — Project Timelines

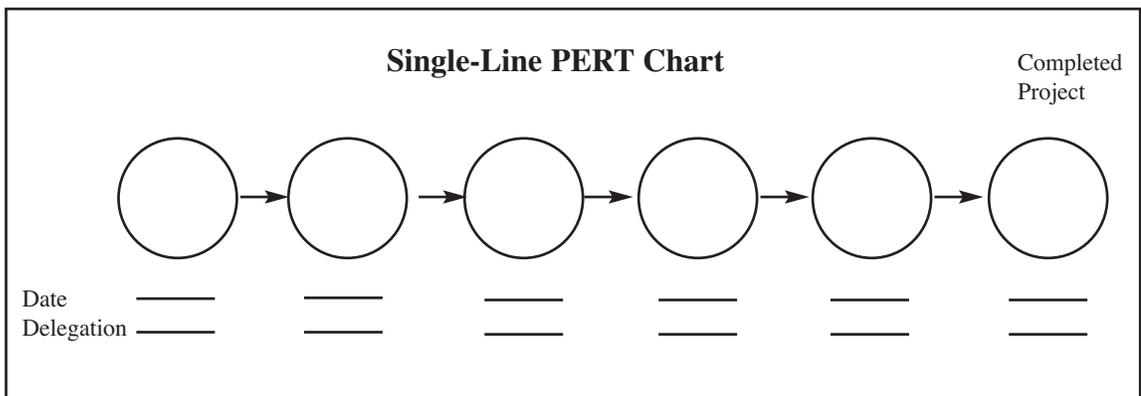
**Directions:** Select a project you're currently working on, or one you've completed, but which didn't go as well as you'd hoped and answer the following questions about it.



1. How can I minimize this project? What could I subtract or shorten?
2. What could I change about my plan? By adding or duplicating or extending a timeline, what might happen?
3. Can I rearrange anything here? Are the sequences, the people involved, or the steps inflexible, or is there some flexibility?
4. What substitutions would make this project work even better? Take even less time?
5. What other ways can I use the time, materials, ideas, and energy going into this project?
6. How many different ways could this project be accomplished?

**Practice Your Flow-Charting Skills**

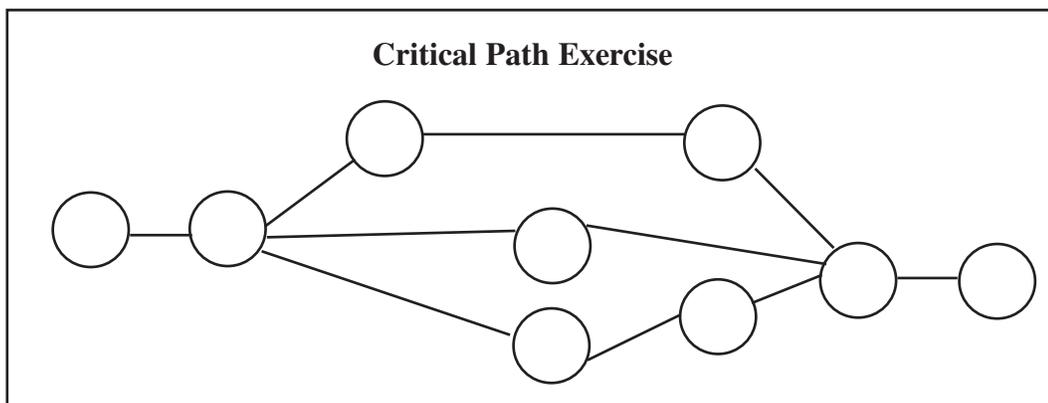
- 1. PERT — Personal Project.** Using the blank form below, think of a project you recently completed, or need to finish, that represents basically a single straight line of steps that you have control over. Try to think of a small project, with six or fewer steps. Work from right to left, just like we did, and determine in each case what had to happen first before your next step could be taken. Estimate some timelines here and indicate the names for any delegated tasks. It's not important that you use all six circles; just use whatever you need.



2. Complete the following exercise to check your understanding of the CPM.

The chart shows a list of lettered but unnamed activities, the activity or activities that must precede each step, and the days required to complete each. Draw out a critical path, using circles as the start and stop points for each activity and eventually numbering them. Label the activity lines between the circles with the letters above, being aware of the activity or activities that must precede each step. Indicate the number of days required for each activity next to the letter along the activity line.

ACTIVITY	PRECEDING ACTIVITY	DAYS
A	-	0 (start)
B	A	4
C	A	5
D	A	3
E	D	2
F	C	3
G	E	2
H	B	7
I	H	4
J	F, C	3
K	I, J	0



When you have finished, determine what the critical path is for this project, and how many days it will take. Also, determine how many “cushion” days you have when following other paths. You’ll find the answer to this problem at the end of the chapter.

3. To celebrate the birthday of a friend, you have decided to host a dinner in her honor on Saturday night, dinner to be served at 7 p.m. Because you want the gathering to be relaxed and informal, the main course for dinner will be spaghetti. It is now 10 a.m. on Monday.

Develop either a PERT or GANTT chart to plan this event. Do a PERT worksheet first to identify all the steps required, how long each will take or how much lead time you must allow. At this point no one has been invited. The menu isn’t finalized, and you haven’t looked in your pantry recently. You want to do something special for the honored guest. Every activity will center upon precisely 7 p.m. Saturday, when at that moment, everyone will sit down and you will serve the now-prepared food. The hot food is hot and the cold food is cold. Good luck!

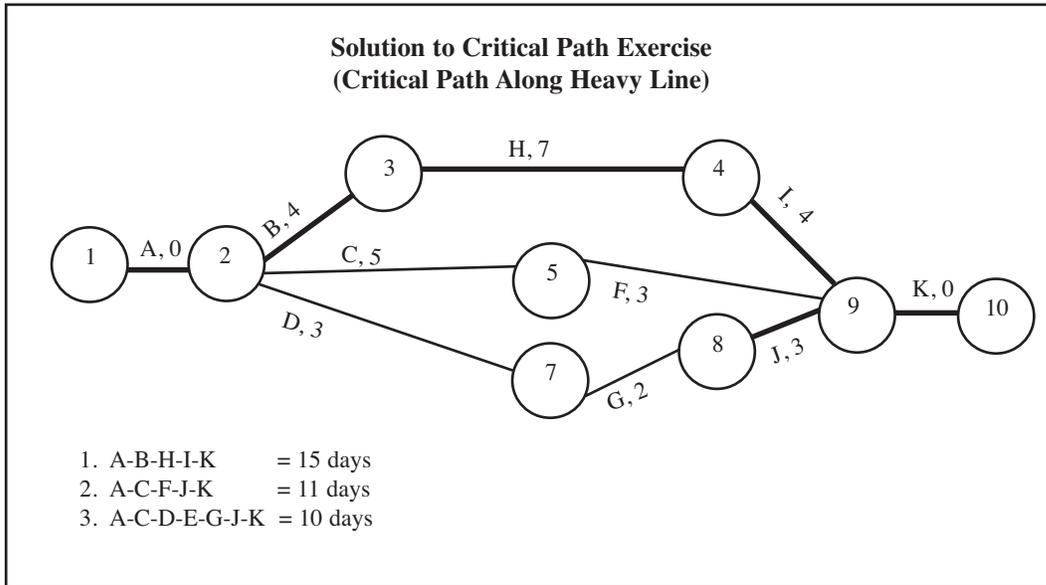
*Action TNT — Today Not Tomorrow*

*No one ever built a reputation based on what they were going to do tomorrow.*

**MY SLIGHT-EDGE IDEAS**

**Answer To Critical Path Problem:**

The critical path runs A-B-H-I-K and takes 15 days to complete. Path A-C-F-J-K requires 11 days (four days of cushion). Path A-D-E-G-J-K will take 10 days to complete (with five extra days). See illustration below.



### Spaghetti Dinner Exercise

There are many factors that may have become a part of your flow chart. Of course, there are no right or wrong answers, but if something was overlooked, it could prove embarrassing or detrimental to the atmosphere of the evening. Here are a few questions to check how thoroughly your evening was planned:

- Did you consider projects not specifically related to the meal itself, but very important to the success of the evening, such as cleaning the house and getting dressed?
- Did you remember: To set the table? To start water boiling for the spaghetti?
- If it's after dark, did you turn on the outside lights?
- Did you consider seating assignments?
- How will you serve the meal: Family style? Buffet style? Restaurant style?
- Did you decide to have background music? Did you select the music you'll play? Did you turn on the equipment?
- Do you have candles and matches for the birthday cake?
- Is the birthday present wrapped? Is the card signed?

## Summary of Key Points

- Make your timelines specific as to date and time.
- That which can be done anytime is never done at all.
- Timelines will work if they are reasonable, equitable and self-imposed.
- Remember, there is normally more than one right way to do something. Don't let your preconceptions get in the way of your creativity.
- By using flow charts, you will be able to see your options for getting the project back on track.
- Flow charts were devised to keep track of large, multi-step projects involving many people.
- State of the art project tracking software is particularly useful for complex, sophisticated projects. Check the Internet for the latest.
- Thinking backward is a more effective planning process when using a PERT chart.
- In thinking backward, always identify the activity or activities that must be completed prior to the beginning of the activity in consideration.
- Include dates and delegations in your PERT chart, so that all relevant information will be on display in the chart.
- Use flow chart information to negotiate for schedule changes or for more assistance.
- Complete a PERT worksheet prior to drawing out your PERT chart for maximum clarity and neatness in the finished diagram.
- Count the number of days required for each possible path from beginning to end of your PERT chart to determine the critical path for your project.
- Always make activities along your critical path top priority.
- In determining time frames for each activity, estimate conservatively to allow for some cushion if unexpected events slow you down.
- Use a GANTT chart to show the time relationships of activities in your plan.
- Study your flow charts after a project has been completed to learn how to plan the activity more accurately the next time you do it.
- A briefing board is an excellent tracking tool for simpler professional projects and for personal/family projects as well.

