

San Pasa's Tips on **TROUBLESHOOTING**

INTRODUCTION. This checklist provides a few reminders for people who have to work quickly to solve business and system problems. The list addresses the kind of troubleshooting that characterizes day-to-day predicaments, although most of the principles apply to solving “big picture” problems, too.

1. STATE THE PROBLEM AS SIMPLY AND CLEARLY AS POSSIBLE AND RESTATE THE PROBLEM AS OFTEN AS NECESSARY TO UNDERSTAND IT. Incorporate any pertinent new aspects and insights into your restatements. Before formulating problem statements, spend time sorting, classifying and analyzing symptoms.

NOTE: Don't assume there is only one problem. There may be several related and/or unrelated problems. Also, don't assume statements about problems presented to you are accurate or complete; however, take care to use courtesy and diplomacy when collecting additional facts.

2. ASK THE FIVE BASIC QUESTIONS OVER AND OVER—WHO, WHAT, WHEN, WHERE AND HOW. Ask **WHY**, if you need to know the reasons for the answers to any of the five basic questions; for example, policies, standard procedures, cost/budget constraints, ad hoc management orders or customer requests, common but “unauthorized” practices, corporate custom and tradition, laws and regulations, etc.

NOTE: When you ask **WHY**, be considerate and to stick to the issues at hand. Separate the immediately relevant facts from the so-called “big picture” facts. It doesn't solve your immediate problem, for example, to dwell on what some may see as “an overall longstanding senior management problem.” Save the “big picture” information until an appropriate later time, preferably after you've addressed the immediate trouble.

3. DON'T PANIC. Others will do this for you. If you remain calm and clear, you'll be better able to collect and make sense of facts and to quickly see reasonable solutions.

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4. ELIMINATE UNNECESSARY EMOTIONAL BAGGAGE. Take advantage of positive emotional energy, such as enthusiasm to solve a problem; but don't get trapped into playing the "blame game," even if other people are. And don't take "attacks" personally. Attacks say more about the people making them and how they're feeling about the situation than they do about you and your efforts to solve the problem. Emotional baggage clouds issues and wastes time and energy, especially the troubleshooter's (that is, *yours!*).

5. RECORD FACTS AS YOU GO, along with pertinent opinions. Keep all your workpapers together—in chronological order—in a clearly labeled physical file created specifically for the problem(s) you're working on. It's OK to use computer software to create your notes and workpapers but generate paper copies without delay and put them in your physical file. Keep the physical file where it may be easily found—in a crisis, others may need it for their problem solving efforts. Likewise, store your electronic files where they may be easily accessed by people who need the information.

It's good idea to date and number each page of your workpapers. For quick reference, make sure your first workpaper has an list of the names and phone numbers of the people and organizations you're working with (for example, other technicians, vendors, customers, and managers). And record the dates and times events and conversations occurred—even if they're only approximate—so you'll have a chronological "history" to review and analyze.

6. CHECK AND RECHECK FACTS. In addition to rechecking the facts you've collected, examine histories of other, similar problems; these may include trouble logs, operations logs, case files, or workpapers. However, don't assume past problems are exactly the same as what you're working on—review the facts carefully.

7. USE ALL THE AVAILABLE RESOURCES YOU NEED to solve problems; for example, operating instructions, technical manuals, system and equipment documentation, other staff members, vendors, managers,

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customers. Don't be shy; if there's a serious problem, it's time to be assertive. Ask for help!

8. LOOK FOR PATTERNS in the information you've collected—but don't talk yourself into patterns not supported by facts. Remember this Rule of Thumb: *85% of problems require changes in processes and systems* (which management controls) and *15% or less of problems are attributable to worker errors and omissions* (which may be addressed by coaching and training—which management also controls). Another reminder: Typically, most problems fall into four general classes: (1) methods and procedures, (2) equipment and related, (3) management practices and policies, and (4) people (performance).

9. ELIMINATE POSSIBLE CAUSES as soon as the facts warrant it. The quicker you narrow down the possibilities, the quicker you'll be able to work on solutions. When you rule something out, make sure you're supported by facts.

10. LOOK FOR OUT-OF-THE-ORDINARY CIRCUMSTANCES OR FOR NEW CIRCUMSTANCES. These may provide clues to the causes of trouble. Ask, "What is different about the problem environment *after* the trouble was noted compared to *before* the trouble was noted?"

11. TAKE TIME TO EXAMINE EVERYONE'S ASSUMPTIONS, whenever time and circumstances permit; and *always list all your own and other people's unexamined assumptions!* Later, when the urgency of the moment has passed, take time to examine those assumptions.

12. CHECK OUT (TEST) PROCESSES AND EQUIPMENT to make sure they're functioning (or malfunctioning) as supposed or as reported.

13. DETERMINE THE IMPACTS and implications of the trouble. List your assessment of known impacts and *continue to check impacts* (they sometimes grow or shrink or even disappear!).

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14. REGULARLY REPORT YOUR FINDINGS AND PROGRESS TO MANAGEMENT. Start by providing high-level summaries but be prepared to provide details—some managers want *lots* of details or *all* of the details! Whenever practicable, brief several levels of management simultaneously, for example, unit heads, division chiefs, customer management. Prepare a short, concise oral presentation; work from notes, if you need them, but have files and workpapers handy.

15. WORK AT THE LOWEST ORGANIZATIONAL LEVEL POSSIBLE to do your troubleshooting. Whenever possible, minimize management involvement; escalate the troubleshooting process only when it's clear the lower level participants can't or won't solve problems in a timely and appropriate manner.

16. SUMMARIZE PROBLEMS, SOLUTIONS AND IMPACTS when troubleshooting is over—for your records and for other people who express an interest (for example, staff members, managers and customers). When troubleshooting is over, it's time to raise “big picture” issues and to recommend preventive action. *Remember:* Be generous when giving credit to people who helped to solve problems and be compassionate with people who may have unintentionally contributed to problems.



Here are some tips about **workpapers**. First, use a standard heading, for example:

| | |
|--------------------------|---|
| Workpaper No. 123 | <i>Description of the workpaper</i> |
| Reference: | <i>Project, problem or document reference</i> |
| Created: | <i>Date of creation</i> |
| Last revision: | <i>Date of last change</i> |
| Author(s): | <i>Author(s) name(s)</i> |
| Page <i>n</i> | |

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“Title of workpaper in quotes”

1. **Paragraph topics should be underlined.** Paragraphs should be numbered. The topic of each principal paragraph should be declared at the beginning. If the same general subject continues in following paragraphs, subject headings aren't necessary; however, when the general subject changes, start a new paragraph with its own underlined topic.
2. **Organize logically.** It helps you and others to organize your thoughts, information collected, and conclusions in a logical way. You determine what way that is—but don't be complicated. Make sure your work supports the desired end product and your organization scheme doesn't make including your workpapers into other documents (such as reports) difficult.
3. **List contents.** If a workpaper is lengthy or particularly complex (not many will be, if you break your work down properly), insert a brief list of its topics or a table of contents at the beginning of the workpaper after the title.
4. **References, diagrams, etc.** References cited (such as other documents or workpapers) should include titles, dates, sources, page numbers (if appropriate), and the location of the reference. Make sure the best copy of a reference is catalogued and included in your troubleshooting library. If this is impractical, note locations (including electronic ones).
5. **Summary paragraphs.** The first paragraph(s) of a lengthy workpaper should be a summary of the workpaper. Include important facts, discoveries and conclusions.
6. **Length.** Keep workpapers as short as practicable. Stick to the purpose of the workpaper and avoid unneeded narration.
7. **Language and style.** Use simple, straightforward Business English. Use a clear, well-organized style. Spell out acronyms the first time they are used.
8. **End.** Indicate the end of a workpaper like this: End.