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IDEA PROCESSING FOR CREATIVITY AND MANAGEMENT*

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Tips and case histories on computer use for idea and outline processing: Productivity software to solve problems of idea hierarchy, transitions, and developments is matched to solutions for communicators. One case is text that ranges from methods and procedures to histories and legal definitions of classification for the U.S. Department of Energy. Applications of value to writers, editors, and managers are for research; calendars; creativity; prioritization; idea discovery and manipulation; file and time management; and contents, indexes, and glossaries (1).

USE OF IDEA PROCESSING

Word Processing Versus Idea Processing Features

What It Is. Idea—or outline—processing puts wings on word processing's computerized paper, paste, and scissors. Idea processors work by allowing you to write in your naked thought sequence and then arrange and rearrange and revise until you arrive at the Gestalt picture of the whole, or a segment for your scrutiny. These unique views breathe life to your idea creations.

Historically Speaking. Outline software was first introduced to 8-bit personal computer (PC) users in 1983: This "Knowledge And Mind Amplification System," or KAMAS, was the first programmable and integrated outline software (2). Several outliners—for 8- and 16-bit PCs—hit the market by the mid-'80s. Such an integrated set of knowledge wrenches is one of the best bundles for idea processing: Idea and word processing mesh with other adjustable capabilities such as retrieval, graphics, and telecommunications (3).

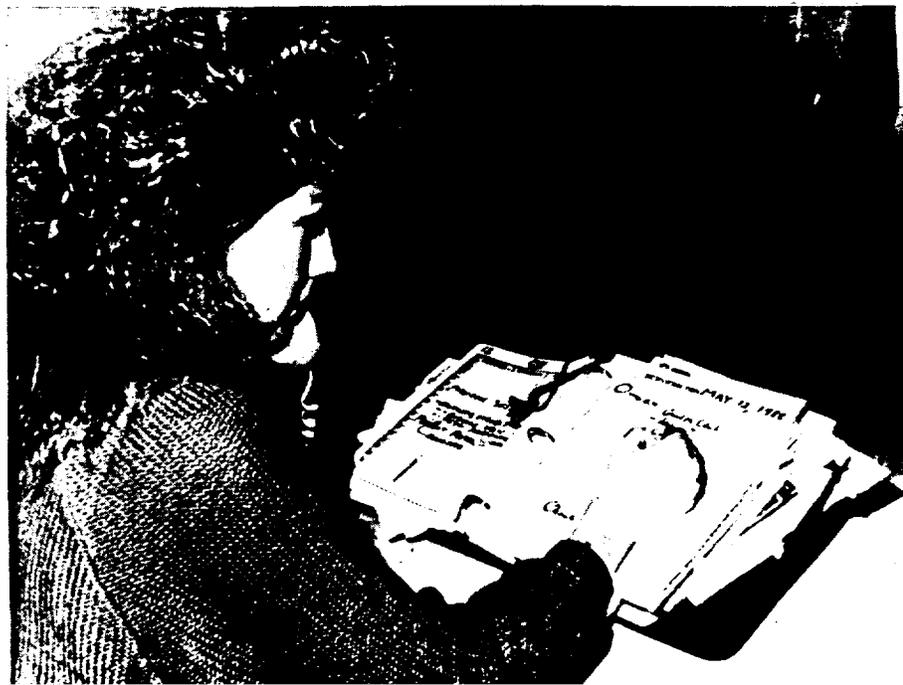
Glitz Versus Prose? Incredibly—such idea tools of the researcher, writer, editor, and designer have gone unnoticed by thousands of communicators transfixed with mega-memory, the latest chip, and the pizzazz of desktop publishing. To the professional researcher and writer, desktop publishing is similar in importance to *Stove Top* (4) dressing—for consumer consumption. But dealers in ideas and wordsmiths create at a more yeasty depth—within the bread of the creative oven.

Saline Solutions. Engage amidst the warm oceans of your mind—where saline muses tug, pull, and provoke. Nature's archetypes of electrolytic hierarchy and synchronization beckon you; and the serendipitous discoveries will not harm you. Shift, sift, and allow the synaptic currents to guide ideas in the Hierarchal House of your mind. Do so wisely with feelings, intuitions, and associations: amplified creativity.

Familiar Capabilities of Idea Processors

Several manipulations common to 19th-Century typewriters (and supplementary tools and materials) are also common to 20th-Century word processors and 21st-Century idea processors: Copy, gather, cut and paste (block moves), mark, and manipulate the file. Of course, we still write, edit, design, and list.

Old and New Tricks. Final products from the architecture of idea processing include all of the usual publications and their parts: headers, footers, contents, lists, index, etc. State-of-the-art tricks

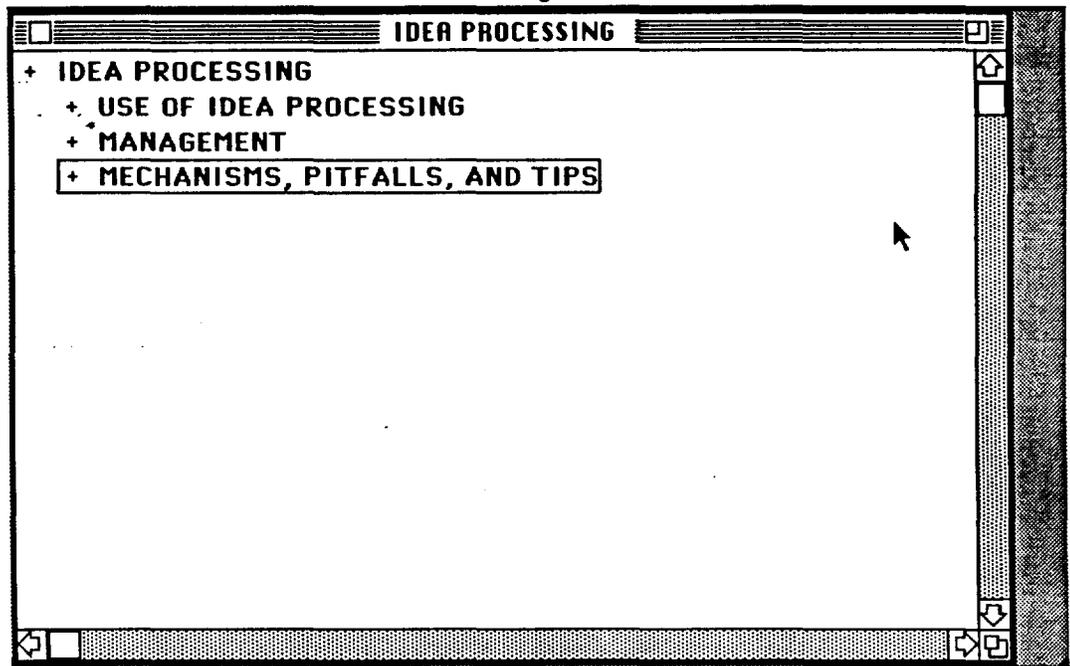


All you need for time management is a three-ring notebook, scraps of notes, yellow stickies, calendar information, and a pencil or pen to write down those priorities and telephone messages, numbers, etc. This is how it used to be, as shown here by Du Pont Manuscript Editor Cindy Hobbs—who instead uses a computer for her daily work. The better way is the computer way—especially with an idea processor!

FIGURE 1. Old Style Time Management

This typical outline processing screen shows an apparent void of ideas to the left and below the arrow. But notice the plus signs that indicate hidden information. The stem of interest here—as revealed by the box—is the last one: "MECHANISMS, PITFALLS, AND TIPS." A key-command or a press of a mouse-button would instantly reveal the subordinate stems as shown in the next figure, Figure 3.

FIGURE 2. Outliner Screen



include templates, windows, telecommunications, tree and bullet-chart making, and the fundamental—but often-dreaded—outline.

The Dreaded Outline. You hate to outline? Great! Perhaps you learned to dislike outlining when your English teacher first told you that you must outline before you write. Did your science teacher tell you that you must follow the "scientific method?" If you are one of these abused holdouts still resisting computer use, now is the time to grow again. Why?

Epistemology and Rewards of Idea Processing

Idea processing is to the thinking writer as word processing is to the writer. Idea processors are to ideas as spreadsheets are to numbers, and as word processors are to words. Idea processing is to computer users as associative and lateral thinking are to psychology users, and as clustering and mind-mapping are to pencil and pen users. Relatively new to the programmer's art, outliners magnify and supercharge the thought-writing interface. As technological variants, idea processors are generators for discovery. But it is as outliners and topic-arrangers that idea processors earn their daily bread.

When the command to "expand" to the next level is given when positioned on "MECHANISMS, PITFALLS, AND TIPS," as shown in Figure 2—then the stems called "PITFALLS, TIPS, and IDEAL FEATURES" drops into view. At this point, nothing would be seen below the IDEAL FEATURES stem. Notice that the three stems each have a plus—indicating hidden information, or children of the parent stems. When the expand command is given to the IDEAL FEATURES stem, the next five stems are revealed (down to "Mouse...") as shown in this figure (right). Likewise, if the "Mouse with windows and pull-down menus" stem is expanded—then the next level of stems which ends in "Fast" is revealed. Notice that this last stem (Fast) has more information—as revealed by the plus at its left.

FIGURE 3. Expand Feature

- + IDEA PROCESSING
 - + USE OF IDEA PROCESSING
 - + MANAGEMENT
 - + MECHANISMS, PITFALLS, AND TIPS
 - + PITFALLS
 - + TIPS
 - + IDEAL FEATURES
 - Easy and fast collapse and expand
 - Outliner compatible with word processor and spell-checker
 - Immediate flexibility of cell sizes to allow insertion of large
 - Automated caps and boldfacing of upper levels of outline
 - + Mouse with windows and pull-down menus
 - If you use more than one computer, pull-down commands ce
 - Eliminates keying in many commands
 - + Fast

MANAGEMENT

Time Management

Crucial to management is time and priority decisionmaking. Once upon a time, one of the best "time management" tools was the loose-leaf binder with a built-in calendar. (For that old style time manager notebook, see Figure 1.)

Work Management: A Success Story

I recently ran into a publication wall of no progress: Two U.S. Department of Energy authorities left unresolved, the organization of a final draft. I had just purchased idea processing software for my home computer. So, over the weekend, I keyed in topics of the document. It took hours to plug in the ideas, but less than an hour to reorganize the document. Very rapidly, I saw the new organization. When the two authorities saw the new organization, they approved it for publication.

Outliners are great for both personal and professional planning. I use an outliner for personal to-do-lists and for professional agenda and publication-tasks. This paper was outlined (Figures 2 and 3).

ACCOMPLISHMENTS

DPS0P B. Varen 53758 TO PRINT(178pp)Friday, December 4, 1987
 DP-9946 Gina Brolles to print Tuesday, December 8, 1987
 DP-2038 Gina Brolles to print Tuesday, December 8, 1987
 D-82-7009-1 to 4 PENCERS (52198) (T. Furnsen
 51236)—level 1 194pp Friday, December 18, 1987
 SPM-2006-4 Zenda Wise 74787 issued 12-18

FIGURE 4. Accomplishments Stores Records of Jobs Done

The Electric Manager. An electronic time manager is more effective than the large notebook, and it is much faster and more efficient. Its calendar is tied to all aspects of the year, down to a fraction of the day. Daily jobs and changing priorities are keyed in. Completed tasks are date-stamped and dumped into a file called "accomplishments" (see Figure 4.). At the end of the day, priorities are readily rearranged without re-keying project names, dates, etc.

Job Tracking. Although your professional future is nurtured by that top 20 percent of work--a vigilant professional needs to have instant grasp on the 80 percent, as well. For daily telephone records, key in a few notes, time- and date-stamp the information, and then store it out of your current priority work file into your "telephone" file (see Figure 5). From such routine bin-sorting you gather valuable tidbits crucial to unexpected reports that you may be called upon later--to complete on short notice.

TELEPHONE

1-800-225-3750 AM. EX., professional; 211:48:35
 AMThursday, December 17, 1987

FIGURE 5. Telephone File Shows Number, Party, Time, and Date of Call Which Can Be Automatically Dialed Through a Modem By Using Telecommunications Software.**Thought Management: A Case History**

For individual thinking, outliners become research and discovery tools. For example, a book I am writing involves means and dates of destruction of species on Earth. After plugging in random cases of meteor impacts, fossil records, and possible close-approaches by planets and comets--I discovered a previously unannounced (to my knowledge) six-million year cycle of planetary catastrophe (see Figure 6). The relationship was apparent only after reorganizing events and causes in a two-megabyte block of memory. I paid a price for the insight.

If All Else Fails, Print a Hard Copy. To back up the memory on my 1983-model computer took lots of time. Backups of these large and complex outlining memories, on my 8-bit 10-megabyte system were chancy and unwieldy. Shifting memories among megabyte masses can lead to disaster unless several megabytes are strategically blocked out in advance of the work. Even then, shreds of memory can be sprinkled throughout a hard disk. I stored hard copies, just in case.

Brainstorming: the '30s Way Versus the '80s Way. For group thinking, outliners can be used with a computer-link to an overhead projector--no need for the 1939-vintage "brainstorming" session of tape, markers, and sheets of paper to hang. More efficient yet, is to link computers together so that all participants can key in their ideas to a coordinator who then feeds the pooled ideas to a large screen.

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FIGURE 6. Hierarchy and Synchronization Result in This Pattern--of A Six-Million-Year Interval Between Planetary Catastrophes--Revealed After Linking Previously Unrelated Data by Using an 8-bit Computer With an Idea Processor.**File and Priority Management**

File management does not become a problem with idea processors until you begin to bounce around and massage massive notes for something like the Great American Novel. The obvious solution to mammoth projects is mammoth memory with a 32-bit computer. (Ordinary writing tasks for a novel, of course, are routinely processed with pencils, typewriters, or the faithful 8-bit computer software.)

MECHANISMS, PITFALLS, AND TIPS**Mechanisms**

Stem structure--similar to the organization of this ITC conference--is the functional unit of idea processing.

Tree and Stem Structures. Similar to tree branches or roots, stems have unique relationships to the whole. Stems can be grafted--resulting in, at times, unexpected hybrid vigor. The "success story" told earlier, was a solution that resulted from shifting and modifying stems until a logical flow developed into the contents shown in Figure 7. The rapid shifting of ideas makes the outliner invaluable.

Leaves, Stems, and Branches. Stems can have many leaves of details. A hoist or leaf command allows you to enter an outline within an outline. The leaf approach adds paragraphs to the ends of stems. The information tree can be defoliated with a command. In turn, the tree can be further trimmed to its main stems. "Expand" to view the branches (in some software--with leaves hidden). "Collapse" to view the whole (conducive to insight--with subordinate branches and stems hidden). When stems contain hidden information, the stem should automatically be marked--with a plus sign in front, for instance (see Figures 2 and 3).

WHY THIS PRIMER IS FOR YOU	1
Is Classification Important?	1
What is Classification?	1
What is Information?	1
Information at SRP	2
Classification and Security	2
CLASSIFICATION RESPONSIBILITY	2
Are You Responsible for Classification?	2
Who is Responsible?	2
Classification Appraisals	2
INFORMATION ACCESS	3
What is Declassification?	3
Why Not Lock it All Up?	3
The Need-to-Know	3
DEFENSE OF US SECURITY	4
Classification Levels	4
Loose Tongues Lose "Ships"	4
Kinds of Classified Information	5
CLASSIFICATION CATEGORIES	6
Restricted Data	6
Formerly Restricted Data	6
National Security Information	9
Summary of Classified Information	10
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Critical Nuclear Weapon Design Information ..	12
Naval Nuclear Propulsion Information	12
WNINTEL	12
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Policy Guides	20
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Other Sites' Guides	20
Troubleshooter's Dozen	21
CLASSIFICATION SITUATIONS	23
Classification Abuses and Violations	23
Overclassification and Underclassification	24
Upgrading and Downgrading	24

FIGURE 7. A Contents Approved and Published Only After Being Created With an Outliner on a 1983 Home Computer.

Clone and Promote. With cloned stems, a knowledge tree can change instantly from apple-bearing to pie-bearing. Functional outlines are clones for such needs as duplicate meetings held at different times. Cloning is used when, at the end of the day, jobs not completed need to be carried (with names, phone numbers, etc.) from that day's priority list to the next day's priority list. Promote and demote features allow immediate changes in relative importance. Upper levels should automatically be bold, as shown in Figure 3.

Pitfalls and Tips

Watch out for outline block: Beware of the blank stare of the printout. Work instead at the terminal. Key in your idea. Press return. Next idea. Ignore relationships at the brainstorm stage unless parent ideas and their children need to be arranged for better thought progress. After you have drained your last idea into the blinking cursor, then print out your document and set it aside to cool for rewriting and polishing (5). Alternate rewrites with pencil and cursor.

Mice are Nice. These little pushbutton desktop controls with a wire tail hooked to the computer have made computers more "friendly." My advice is to consider a mouse and "drag-down" window menus, especially if you use more than one computer. (Why memorize commands, when you can click a mouse? Some users dislike mouse control because it takes a hand from the keyboard. They prefer key commands only.) Try before you decide.

An Outliner for Everyone. Idea processor brands vary in their ease of selection and re-selection of the size of the text block of memory deemed necessary for the project. Be sure the cell sizes are workable. Choose the best outliner for you, and then adapt. If cell (leaf, or text block) space is binding, then stack your cells together in a bin or under a common heading for sorting later. Some of the outliners automatically create a new block when the current text block is filled.

Free Software. Questionable freebies from the public domain or other nonsupported software can scramble your work or crash, lock, or fat-loop your computer. Avoid this bleak land of the reset button! Instead, select software backed by a reputable company that supports and updates.

Invisible Software. Get the horsepower PC: User-friendly and fast, it creates the invisibility crucial for thought focus, capture, and development (6). Go for gigabytes of random access memory to shove and bend huge chunks of memory. Cost will be rewarded by incredible software yet-to-be-written. Compact Disc Interactive systems with 500-plus megabytes will allow access to encyclopaedic portions of knowledge.

Go for 32! Use the integrated idea processor that has it all. It's not on the market yet, to my knowledge, but this package--custom (in order of importance for idea processing) for the 32-bit machine--would:

- Outline, index, and sort
- Retrieve, file, clone, and process ideas and words
- Maximize printer capabilities
- Be fast, invisible, and memory resident
- Be programmable for the nonprogrammer
- Join to telephone and other information exchange systems
- Allow access to CDIs (Compact Disc Interactive systems) and other sources of information (sound, image, etc.)
- Allow hundreds of digital color and sound choices [optional]
- Process and create artificial intelligence [optional]

Beware. Many solutions with idea processors await your problems. But I leave you with one caution: They only work with a lot of work. To me, at least, they are well worth the work (significant), the expense (minor), and the effort (appropriate to the problem).

REFERENCES AND ACKNOWLEDGMENTS

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