

SUM OF THE PARTS

'Integrated software' has become one of the fashionable expressions of the software business. In this article we discuss exactly what is meant by integration and look at the advantages and disadvantages such a system offers. In future articles in this series we will look at specific packages.

Integration represents one of the most exciting trends in software ever. And while for the moment it applies mainly to business systems, its techniques have begun to filter down to home micros. An example of this is the Sinclair QL, whose four software packages encompass the main principles of integration (see page 502).

The main achievement of integration is to enable the programmer to switch between different packages quickly and simply. In an ideal system it should not be necessary to quit one program, return to the operating system, swap disks and then start up another program. To be effective, the change of application has to be almost at the push of a key and some programs, such as the Lotus 1-2-3 and Ashton Tate's Framework achieve this.

It is also useful to be able to transfer data between packages easily. For example, you might create a column of yearly sales figures for your business in the spreadsheet program, then transfer that whole column to the word processing program where you might be writing the annual report. You could use the names and addresses in a database file with the word processor to write a personalised letter to all the people on file. On the

Lisa and Macintosh, this facility is extended to the point where you can create a freehand drawing with the graphics program and then move it straight to a word-processed document.

In addition, all the different programs should work in the same way and feel the same in use. Screen layouts, command keys, prompts, error messages — all the aspects of the 'user interface' — should be identical or comparable. If they are not, the user cannot confidently go from one area to another without having to stop and adjust to the change in operating procedures. This interrupts the flow with which the software can be used and does not allow it to be exploited to the full.

A handy side effect is that the package becomes easier to learn. Having to learn to use five new application programs — some menu-driven, others command-driven, all with different command formats — is a daunting task for anyone. But if they all work in the same way, you need to learn one only. This feature is known as 'commonality' and is often referred to when integrated software is discussed.

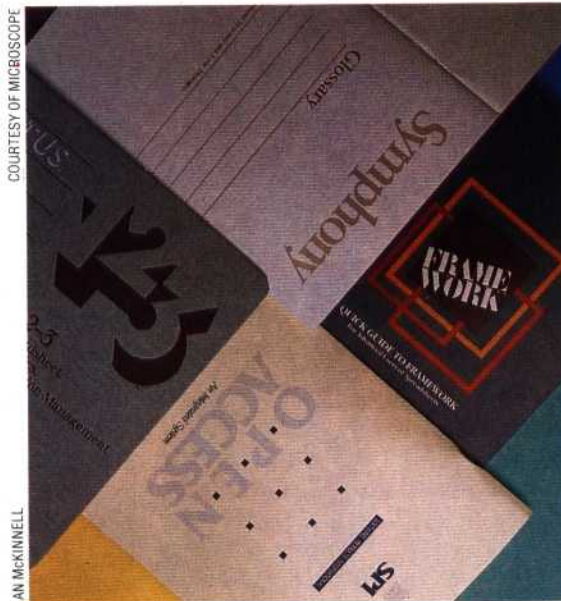
We have established then that integrated software involves three design principles: the ease of switching from one application to another; freely interchangeable data; and commonality of format. This contributes to making the computer more accessible to the average user whose needs can be met with two or three software applications. It will also undoubtedly increase the popularity of the personal computer as it becomes more efficient and easier to use.

However, integrated software also has its disadvantages. Primary among these is the fact that integrated software packages need large amounts of RAM to operate. Imagine trying to fit a word processor, spreadsheet, and database — the three applications that are most commonly integrated — into 16 or 32 Kbytes. It can probably be done, but there would not be much, if any, room left to store data. It is this problem that restricts integrated software to machines with large memories: in general, to computers with 128 Kbytes or more. Of course, programs that are integrated can share some routines, so disk storage operations and other housekeeping activities need only to be written once. Nevertheless, each application has its own special requirements, and these take up space in RAM.

A second weakness of integrated software is an offshoot of the same problem of storage. To save on the amount of memory a program requires, software writers take shortcuts with the individual applications. A word processor that is built into an integrated package with two or three other

To Be Reviewed . . .

Among the integrated packages to be reviewed in this series are Lotus 1-2-3, Open Access, Symphony and Framework



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