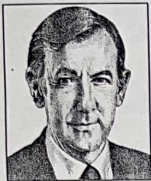


## APPLIED INTELLIGENCE

## Strategic Uses for the PC in Business Environments



**JAMES  
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*In this, the third of five columns on strategic systems, James Martin discusses how personal computers can be used to transform business processes.*

The habit of thinking in terms of strategic uses for personal computers ought to pervade any enterprise that uses them.

The return on investment from PCs varies greatly from one organization to another, of course. In some cases, personal computers generate no profit and represent a financial drain. In other cases, individuals may be using PCs to automate specific business tasks, but the improvement in efficiency often represents a return on investment of only 10 or 20 percent.

There's a much higher return on investment when PCs are used to make fundamental changes in a business process. Sometimes this occurs at the departmental level, whereby a department may be reorganized to achieve a high level of automation of an entire business process. All members of the department have a personal computer and share the same database.

### Identifying a Strategy

The highest return on investment from personal computing is realized when a strategic thrust is identified that achieves a tremendous improvement in efficiency or value of a business function by using computers.

Often this requires a radical restructuring of the organization and of the business processes in order to take advantage of information technology. It may involve links to customers or suppliers, electronic document interchange or the use of an expert system.

A 1987 study, "Managing Personal Computers in Large Organizations," by Nolan, Norton & Co. of Lexington, Mass., divides corporate uses of personal computers into four categories of evolution, as shown in the figure. These categories are described below.

### Technical Proficiency

As personal computers begin to penetrate a business, early adopters learn the new technology. Many of these users create their own procedures using tools such as Lotus 1-2-3, dBASE III, PC/Focus, Javelin and so on.

Some users learn to build very sophisticated financial models or decision-support models. If an information center has been established, it is typically used as a catalyst to promote technical proficiency in the use of personal computers.

In this early phase, little effort is made to measure benefits and to direct end-user computing to strategic objectives. Usually the benefits do not yet justify the expenditure of users' time, training, support, hardware and software.

In this phase, personal computers are used extensively within an organization for automating specific business tasks and improving individual productivity.

An information center may be used to manage and support end-user computing and direct it toward the most profitable applications. It may also play an active role in the promotion of more advanced technology, such as the building of expert systems by end users.

Typical objectives of end-user computing in the task-automation phase include: 1) encouraging better decision-making through the use of computerized

organization. Emphasis is generally placed on improving or automating entire business processes.

Users are tackling problems that have a direct impact on cost or revenue; for example, they are making better financial decisions, optimal purchases of bulk chemicals, automated management of purchasing decisions, just-in-time inventory control, simplification of procedures and so on. Often these individual business functions are integrated within an automated business process.

Investments in business-process automation are driven by a tactical vision,

phases what has been found elsewhere when computer benefits have been measured: It pays to identify the most important uses of systems and concentrate on those. This requires management leadership and strategic business-oriented planning.

As in other new business thrusts, a period of investment is needed, and the results of the investment need continuous attention from management, cultivating the new procedures and making adjustments until the results can be harvested.

A major refocusing of information systems management and end-user computing may be needed to achieve the maximum rate of return in an investment in personal computing. Once personal computers are in widespread use and a corporatewide network provides connectivity at a suitable level, a technical infrastructure is in place that permits major strategic thrusts with end-user computing.

The era of isolated personal computers is rapidly evolving into an era of networked personal computers that share common databases.

The term "cooperative processing" has come into use to describe systems in which the best capabilities of the personal computer and the mainframe are combined.

Cooperative processing links the personal computer and mainframe to combine both sets of advantages. Sometimes complex cooperation is needed between the software that runs on the mainframe and the software that runs on the desktop.

IBM's Systems Application Architecture, or SAA, is designed to provide standards for application development in a cooperative-processing environment.

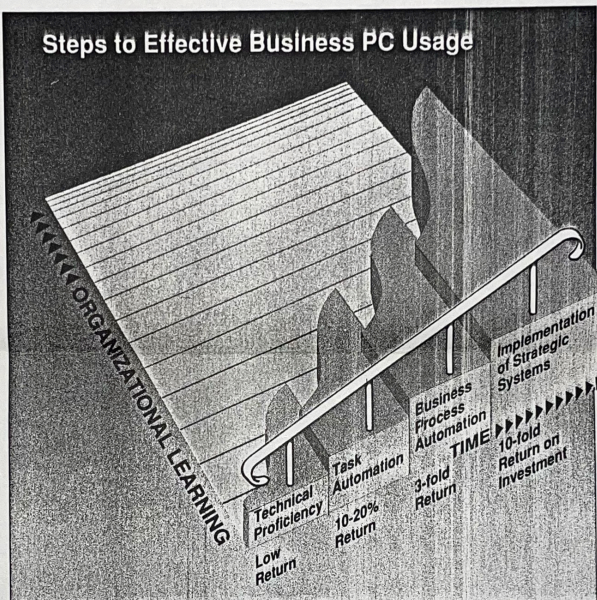
All applications have a similar look and feel in their user dialogue and in their linkages to relational databases across multiple machines accessed by a common network.

A new thrust using information technology may give a corporation a strong competitive advantage for some years.

Eventually, however, the competitive edge will be lost because most corporations will use the technology in the same way. What is a strategic systems opportunity at one point in time may be an operational imperative five years later.

The corporations that pull ahead are the ones that seize the new opportunity first. There needs to be a constant reassessment of the new opportunities and threats that new technology is bringing.

Next week, I'll examine a methodology for identifying strategic systems opportunities. ■



*The highest return on investment is realized when a strategic thrust is identified that achieves a tremendous improvement in efficiency or value of a business function.*

tools and information; 2) encouraging users to invent better procedures and cut administration costs; 3) increasing knowledge about worker productivity; 4) bypassing the development backlog of the information-service department; 5) ensuring that user-built systems are well-designed and maintainable; 6) greatly accelerating the development of most systems that users require.

In the task-automation phase, investments in end-user computing are driven primarily by improvements in technology rather than by a strategic business vision.

A 10 percent to 20 percent return on investment is generally obtained.

### Business-Process Automation

During the third phase, personal computers are widely used throughout the

usually at the departmental level. A threefold (that is, 300 percent) return on investment may be attained.

### Business Transformation

In the final phase of personal computing development, personal computers have fully penetrated the business, usually with corporatewide networking. The user community is now experienced with PCs and capable of being creative in their application.

Investments are driven by a strategic business vision rather than a tactical vision. Technology is used to restructure business processes, not simply automate them. This may require a substantial restructuring of the business organization. A tenfold (1,000 percent) return on investment may be achieved.

The Nolan, Norton & Co. study em-

*The James Martin Productivity Series, an information service updated quarterly, is available through High Productivity Software Inc., of Marblehead, Mass. (617) 639-1958. For information on seminars, please contact (in the United States and Canada) Technology Transfer Institute, 741 10th St. Santa Monica, Calif. 90402 (213) 394-8305. In Europe, contact Savant, 2 New St., Carnforth, Lancs, LA5 9BX United Kingdom (0524) 734 505.*