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Personal Information Managers— An Overview

In This Issue:

By Janis R. Monroe, CPA, and Richard Oppenheim, CPA

Janis Monroe is president and founder of MicroMash in Englewood, Colorado, and is a member of the AICPA Information Technology Research Subcommittee. Richard Oppenheim is an independent consultant in Thornwood, New York, and a frequent speaker on the subject of business information and computer technology use. In Part One of this article (included here), the authors introduce the reader to the concept of personal information management. In Part Two, to appear in the Fall '94 issue, descriptions of some of the popular personal information manager (PIM) products available will be discussed.

Information flows are all around us: They ebb and flow like the tides. In every facet of our lives, we give out information and in turn are major receivers, whether it is news from around the world, your neighbors or from colleagues, of your favorite sports teams, or about any other fact, figure, or opinion. With these continuous data flows coming at us from all directions, how can we separate the important from the useless and every-

thing in between? How do we remember Aunt Mildred's birthday, or the phone number of our favorite restaurant, or what day and time we were meeting with the president? What was that address? What did I promise, what did they promise me? Who was in charge of that company? These items represent parts of the volumes of personal information discussed in this article. Yes, there are automated ways to collect, classify, and retrieve such information.

Personal Information Management Systems start with an understanding of our needs as follows:

Awareness:	need for information —news, stock prices, sports scores, etc.
Gathering:	collecting the data— reading a newspaper, magazine, etc.
Classifying:	determining links that separate the news into categories —current events, sports, business, politics, etc.
Storage:	remembering the information—clipping the article, putting it in a file.
Access:	finding the information file, and when found, using, retaining, and discarding.

Information comes in two basic

forms—static and dynamic. *Static* implies that the facts, once identified, do not change. They are fixed in time: game scores from yesterday, daily closing prices of stocks and bonds. Names and addresses generally fall within this category. Changing of specific data is typically infrequent. *Dynamic* information implies continuous changes—people's opinions, the latest political poll, moving averages, future weather. Items such as airline ticket prices have elements of both: while they are facts, they do have a tendency to change often.

Another aspect of information is based on who the information is for. Personal information includes your family's birthdays, today's lunch appointment, next week's golf game. Company-wide information is meant to be shared with others in your group, department, office, or company. This includes financial data, market-

ing statistics, or competitive product analyses.

Different kinds of information can be obtained by the second, minute, hour, once a day, or some other time-based or random schedule. Buying the newspaper allows one to read it when convenient, while the TV news has a set time for airing with break-ins for special events and commercials. A more direct piece of information is someone telling you what time it is - like a wake up call at 7:00 a.m. You set the alarm the night/morning before and then let the clock or operator let you know when that time arrives.

The last component for consideration is to assess how much information will fill your plate. It must be determined not only how much, but how many different types of facts, figures, text, etc., will be gathered and stored by you. How many names in your Rolodex—20, 500, 1,000? How many phone numbers? Does the list go on forever, or is there a culling of some of the names as they become out of date? How many papers do you read? Do you need to retain specific information or are there just some key points to absorb?

Types of PIMs

Traditionally, personal information has been gathered and retained in a variety of ways ranging from memory to paper. We have every conceivable type of information in every conceivable form, from scribbles on the back of business cards or items neatly typed on some paper, to plastic or electronic devices that contain information or even information tucked indiscriminately in some memory synapse. Credit card numbers are embossed in plastic, but most people memorize their telephone credit card numbers, not their Master-

Card or Visa numbers. Everything is based on how and where we intend to use the information.

What kind of calendar do you keep —last year's Christmas gift, a less functional picturesque one, a Day Timer, or one on a computer? How about all those phone numbers? If you misplaced the listing of names and numbers, would you be lost? (Everyone backs up copies of disk files, how many make photocopies of their personal address book?)

Generic software products, including Word Processing, Spreadsheets, and Data Base software can all be used to create your own information manager. Type the information into your Word Processor or Spreadsheet and let the system retain that information for you. If your lists are of reasonable length, say two to four pages or under 200 names, it is very workable. Information can be edited and changed, items can be sorted, and you can search for specific names or numbers. It is a small improvement over the range of paper-only documents.

Simple calendaring and address book list software can also be used. The first was a product from Borland called *Sidekick*. The newer, calendar-only products add a lot of pizzazz to the date and appointment function. More sophisticated is the wide range of software products that fall within the category of PIMs. These products vary in functionalism and features and are intended to bring some order to the morass of information that is flowing across your desk.

Part Two of this article will focus on a few of the products available for use as personal productivity tools. This does not mean that programs not mentioned should be ignored. PIM prod-

ucts encompass a broad category, and there are too many programs to discuss here. The state of the art has advanced to the point of offering a multitude of customized products as well as the addition of specialized databases that combine elements discussed above, calendar options, names and addresses, phone numbers, other information, and a means to access, select, and print that which is needed. Just like a good accounts receivable system has the ability to provide quick retrieval of old invoices or all billings to a single customer, these PIMs have the facility to group information in lots of different forms and enable retention of information that an individual's memory can no longer easily store. It is a way of electronically remembering Aunt Mildred's Birthday—you can even track what presents you have given, and received.

Getting Started

How do you go about automating your personal information? The first thing to do is decide what, how, and whether to. Assume that you want to give it a try and the information to be captured is some combination of telephone numbers, addresses, and calendar and tracking information about specific individuals, like when phone calls were made and future dates for follow-up events. The next decision must consider where this information is going to be stored, in the office, on the road with a portable, at home, or all of the above. Part of the problem of using the information is having the data in one place while you are somewhere else. You know what it is like to go into a meeting with a folder of papers you need left on your desk. Do you go back to the office or proceed without the

folder? A key to success with a PIM is matching your needs with your working habits to develop a comfortable sharing of information. For this review we are assuming that the use is personal and that you do not electronically exchange the information with other people in the organization.

Moving information from your paper files to electronic files takes time. Investments of time always have future payoffs, so go ahead and start the exercise. Practice is a very good way to learn about the new product you are using. For repetitive tasks, such as entering addresses, you may have an assistant who can help you, but do not delegate it all. Remember you are going to be the user, so you have to learn how to navigate around the products.

The other requirement is hardware. Several of the products run only on Windows-based systems and therefore require the following minimal resources (more is better) for such a system—4Mb Ram, 386, and lots of hard disk capacity. As you go through this potpourri of ideas, one of your decisions will be whether any of this information will be printed. Obviously laser printing is better, especially if you want to print in any of the fancy portable diary styles. If you will always carry your computer with you, then the need for lots of printing options may not be as important.

Evaluation Criteria and Summary

Your information, after it is collected, sorted, and classified, has to be constantly tended, just like a garden of vegetables. Information changes continuously: some becomes stale and some is used, or is no longer needed and can be archived. The key to any good information system, paper or electronic, is that the information is valuable, and when the data are found, they are accurate. Calling an old telephone number does not necessarily guarantee you will be connected with the individual you need to speak with. If you are going to rely on this information, it has to be correct. Therefore, just like the vegetables, work with the data

and the program, daily, weekly, monthly, whatever it takes to keep it growing.

Assessment of any product that provides personal productivity has to consider the return on your time to learn as well as dollar investment. Part Two of this article contains a table of the products described as well as ratings as to their "Learning Curves." If you have no time, no typing skills, and are away from your desk a lot, picking a PIM should be delegated to your assistant as you will not have time to learn or use the product. However, if you are part of the growing number that rely on some part or all of their information being computer-based, then these products will clearly help you.

The concept of a contact manager is to maintain some order for the wide range of promises and commitments that have been made by you and to you. If this is a large part of your work, then stay within the contact manager category—ACT, Commence, Ecco, GoldMine. These products each have a slightly different interface. If you have unique sets of data, then the customization of Commence may prove best. If your work tends toward entering lots of information in a series of outlines, then Ecco has an edge. If your work emphasizes contacts and follow-up requirements, then GoldMine and ACT should have principal consideration.

Other programs indicated should be considered if there is no need for the features that have been discussed. If all your needs will be met by maintaining a calendar and a "ToDo" list, then do not spend hundreds of dollars, instead buy one of the inexpensive, yet useful calendaring programs. For other productivity information programs like maps and business card maintenance, the choices are yours if they can make your work time more effective.

Another category not to be ignored is the growing number of "Office Suites" from all of the major manufacturers—Lotus, Microsoft, Word Perfect, and Borland. These suites combine multiple applications in one box for a

single price. The ability to combine a common interface and easily transportable data allows for large databases of information to be created. For example, maintenance of mailing lists along with form letters can be very helpful in sending information to customers and clients. The "Office" products can include calendaring products (Lotus Organizer), but do not have the full range of contact management features provided by the stand alone applications described in Part Two.   **IT**

Keeping "In Sync"

If you have a portable and a desktop, both sets of information files need to be kept in synchronization—in other words, they have to have the same data. It's bad news to have phone numbers updated on one system and not on another. In comes another software category—File Synchronization. The key feature of these products is to keep two or more data files "in synch" with updates and changes, so you do not have to go through the data entry procedure more than once. The old standby and still champ is Traveling Software's *LapLink V*, which has worked almost flawlessly in all of its renditions and versions for 10 years. The program provides for complete file transfer between multiple computers, even on a network. *LapLink V* is now integrated with the broad-based communications suite of programs, *CommWorks*. Other products include *FileRunner* from MBS Technologies, a very good tool to maintain file changes record by record. This feature makes sure that the latest information is in the file by comparing data from each file. A third program in this category is *SmartSync* from Nomadic Systems which uses the shared-directories metaphor to maintain master or member files. Once connected, the system moves data from one file to the other only where there are records with date differences. As all of these programs rely on the system date attached to each file, it is important to make sure that each of your systems is saving data with the current date.

Software Development Using RAD

By William B. Creps, CPA

William Creps is Documentation Coordinator–TQM/ISO 9000 with Rogers Seed Co. in Boise, Idaho. He is also a member of the AICPA Information Technology Practices Subcommittee. In this article, he identifies some of the tools and techniques used in RAD, explores ways in which CPAs are affected by RAD, and discusses the benefits and risks of RAD.

To stay competitive in the 1990s, companies in most industries have found ways to shorten their product development cycle time. Auto makers, for example, can design a new car model in two years instead of four. And retailers are requiring their suppliers to replenish retail shelves in a matter of days instead of weeks.

Likewise, software developers are scrambling to reduce the time it takes them to produce software which meets user specifications. Using a process known as Rapid Application Development (RAD), software developers can cut development time in half.

Rapid Application Development

Today's software can be produced in a way that's radically different from using traditional development cycles. Previously, project phases moved in a stair-step pattern (see Figure 1). This pattern, sometimes referred to as the waterfall method, advanced to the next step only after the current step was completed. Since the project moved in a line, the software design was "frozen" in the design stage in order to advance to the construction stage.

RAD, on the other hand, produces software in small, manageable chunks using a fast, iterative process consisting of prototypes and user meetings. A well-known advocate of this develop-

ment method, James Martin, has warned software developers, "You are taking a terrible risk if you do not do [implement] fast development" (*Computerworld,* May 31, 1993).

Software can now be developed in a repetitive, looping development cycle (see Figure 2). Rapid Application Development (RAD) focuses large amounts of time and effort on the software design. The design is not "frozen" because the construction stage on a prototype version can be reached almost immediately. In fact, much of the design specifications are identified, as users respond to demonstrations of constructed prototypes.

RAD projects shorten development time because software is usually implemented within three or four months. And because the design is tailored to user requirements, the quality of the software is higher. As explained below, RAD projects involve a combination of 1) methodology, 2) project teams, and 3) software tools.

Methodology. A development methodology is a set of procedures, meetings, and documents that give the development process structure. Using a structured methodology helps developers to apply engineering principles to software development. The methodology helps to produce software which consistently meets user requirements. Following are some features of a RAD methodology.

■ Incremental projects. Each project is carefully defined in what is called a Scope Document. This document limits the scope of the project, and makes project management simpler. A large project, such as a new system, is usually broken down into smaller modules, which are produced as increments of the total system.

■ Design iterations. Design specifica-

tions are turned into prototype software as soon as possible. The prototype software can be created with a software utility program, usually with a graphic user interface. Although not every feature and routine is created, a rough prototype can be enough to show users and to elicit their reactions.

Because the prototype software model can be changed easily, users can continue to change their specifications without slowing down the project. In fact, some RAD developers maintain that the strength of RAD is that it lets you fail fast.

■ Documentation. Formal documents are used at each phase of the RAD project stage to enhance communication. For example, in the analysis stage, a Statement of Business Purpose is developed, reviewed, and agreed upon by project members. In the design stage, a Project Design Document is produced, which contains the detailed specifications.

Project Teams. RAD succeeds or fails based on the degree of user involvement. To encourage participation, it uses highly focused meetings of small teams to determine project objectives. These meetings are called Joint Application Development (JAD) meetings. Here, software developers and users jointly define the project goals and business processes supported.

These project teams usually include users and management from several departments and represent a cross-functional approach to software development. This approach succeeds because key persons are brought together to make decisions in an interactive, real-time mode. Often, full-time commitment on the part of the user is necessary.

Software Tools. RAD project development is made possible by the evolution of several software utility tools. User-friendly prototyping tools help software developers produce prototypes quickly and allow the

design to be changed often. And Computer Aided Software Engineering (CASE) tools can help to produce the actual software. CASE is high-level development software that automates both designing the data and writing the final program source code. Not all CASE tools will work in a RAD project.

CASE tools can create common software routines that are reusable. For example, specific software routines and functions created as separate entities can be integrated directly into later projects. These routines and functions are sometimes placed in a repository, which serves as a database of information about application software. CASE tools can also put business rules and definitions, such as product quality standards, into the repository. Drawing from this repository speeds software development when used in subsequent projects.

Impact on CPAs

When software is developed using a RAD approach, CPAs can play a major role in these projects. They can serve in the following capacities:

■ Key Users. JAD teams require key users, or business analysts, who understand the specific functions the new software must support. These functions almost always involve interfaces with the general ledger or other reporting system. CPAs are qualified as key users because of their experience and knowledge of business processes and financial systems.

■ Project Coordinators. The RAD approach focuses on coordinating such diverse project elements as people, meetings, user requirements, and documentation deliverables, all in a very short space of time. A project leader must take an analytical approach to tracking all these elements. CPAs can use their planning and organizational skills, developed by audit or even tax experience, to fill this role. Although most RAD projects use a company employee for

this role, it could be filled by an outside consulant.

■ Project Scribes. In JAD meetings, project and user requirements are discussed and finalized "on the fly." It is critical that the details of these discussions are captured accurately by a project scribe, who ideally understands software development and business process concepts. CPAs, with their attention-to-detail and follow-through skills, can be useful in this role.

RAD methodologies may have an impact on software capitalization and useful-life estimates. Shorter software cycles can be at odds with established depreciation and amortization schedules. CPAs should be aware of the shorter life cycle which may require faster deductions.

Benefits of RAD

1. User requirements are met. RAD projects allow users to give feedback and suggest design changes throughout the development cycle, not just once during the initial design phase. Since the software tools usually create source program codes automatically, software developers spend more time responding to user requirements and less time coding. As a by-product of this process, users often begin to appreciate software development as a much more creative process.

2. Designs can be changed. Previous methods of software development centered around set, finite steps. Generally, once the design phase was completed and agreed upon, later design changes became difficult and costly. This approach incorrectly assumed that users could describe their needs in written specifications. RAD development is based on an iterative design cycle and allows users much more freedom in changing the design.

3. More attention is paid to user interfaces. RAD projects rely heavily on user reaction to prototype models in test sessions. Software developers can spot user interface problems

directly from these test sessions. Also, users formulate their preferences, such as the placement and design of pop-up windows, by seeing and using the prototype models. Software developers can test and modify their navigational schemes based on actual user reactions.

4. Project results are visible. RAD projects are normally completed in three-to-four month segments. This results from segmenting the software development into small manageable projects. And RAD projects requiring more than four months have something visible, the prototype, to show to management early on. In this way, RAD projects may be easier to budget for, since they are more controllable and overruns may be less frequent.

5. Project management can be improved. RAD techniques make good project management sense if applied to any development project. Software can be developed more quickly and can be of higher quality even when CASE software tools are not used to produce program code. This results from RAD's focus on understanding business requirements and encouraging work from development teams.

Risks

RAD projects are not without risks, and software developers should consider the following points:

■ Band-aid mentality. The RAD project may not consider enterprise-wide issues—resulting in a series of mere fixes.

■ Data Modeling not considered. RAD projects may not fully analyze the database to make sure the information is fully accessible and the performance of the computer hardware is not impaired.

■ Design-rich solutions. Because RAD projects allow extensive user input, the amount of effort spent designing user functions may overshadow the effort

spent analyzing the business process.

Some projects may be unsuitable for RAD development. For example, infrastructure projects have a widespread impact on the enterprise. These projects involve designing core database and business logic functions and would be unsuitable for RAD development.
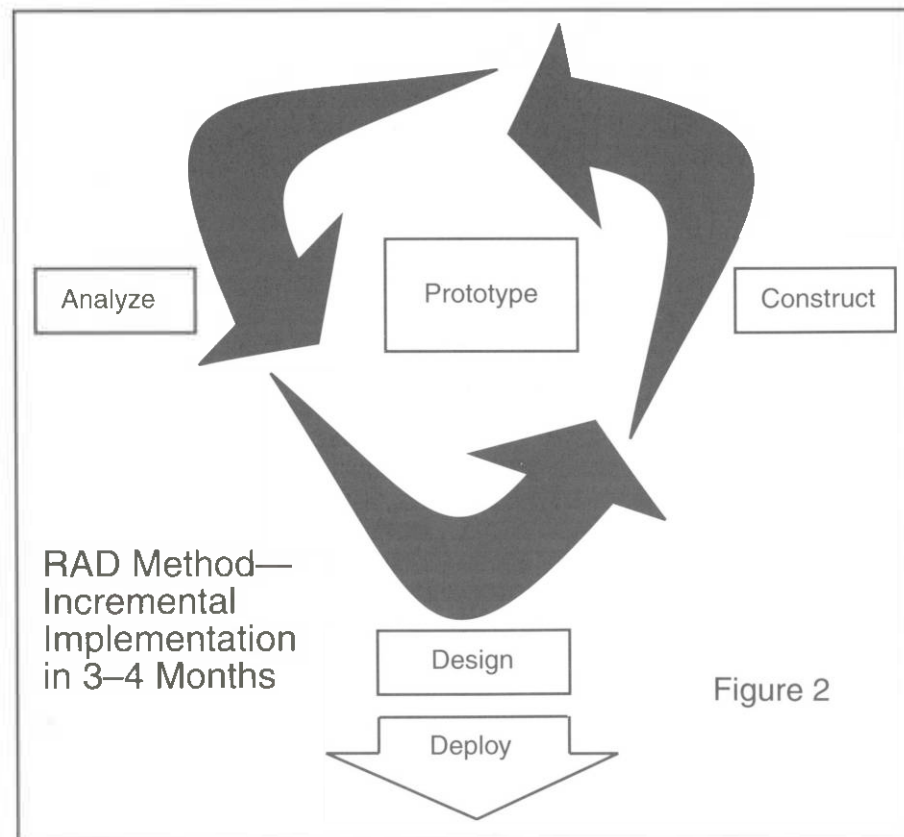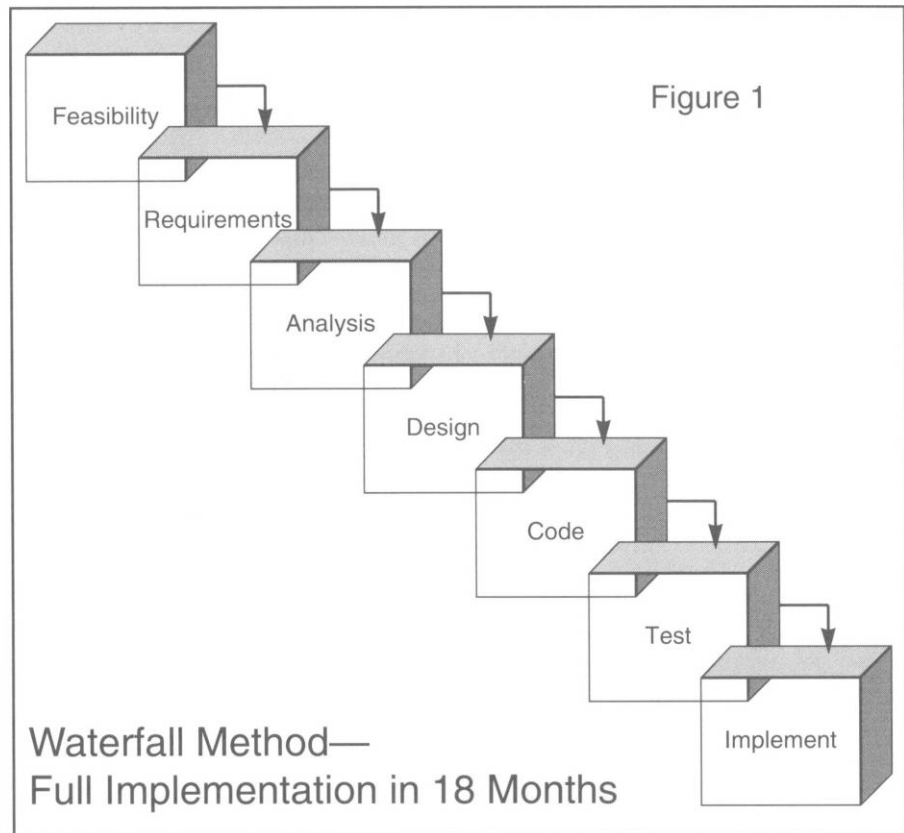
Conclusion

RAD does not simply mean fancy automation tools. It means rethinking the entire software development process. It means development methodologies must be strictly adhered to or the project will lag and flounder. A careful balance is needed between structured methodology and quick, perhaps unstructured, prototype development.   **IT**

Figure 1

Waterfall Method—
Full Implementation in 18 Months

RAD Method—
Incremental Implementation in 3–4 Months

Figure 2

Automatic Identification Technologies

By Kenneth D. Askelson, CIA, CPA, CFP

Ken Askelson is an Area Audit Manager with the JCPenney Company in Buena Park, California. He is also a member of the Information Technology Research Subcommittee. In this article, Askelson provides an overview of some of the technologies used in automatic identification: bar coding, RFDC, RFID, and magnetic stripes. He also lists the benefits and applications associated with each.

Using automatic identification technologies is a critical business strategy that is intended to improve the accuracy, efficiency, and productivity of an organization. Key technologies that fall within the automatic identification arena include bar coding, radio frequency data communication (RFDC), radio frequency identification (RFID), magnetic stripe, magnetic ink character recognition (MICR), optical character recognition (OCR), smart cards, voice recognition, machine vision, and biometric identification. A major advantage these technologies provide is an efficient and effective way of automatically entering information into computer database systems. Products need unique markings that allow for referencing and updating at any time.

It is important that executive management and other key employees of the organization understand and recognize the costs and benefits provided by these technologies before moving forward with implementation. Utilized properly, they help to maintain a competitive advantage by providing timely and accurate operating information.

Bar Coding

The most prevalent kind of automatic identification for an item or product makes use of bar-code technology. Bar codes are appearing on almost everything from shipping containers to groceries, clothing, and even envelopes sent through the mail.

A bar code is a binary code with information representing numbers, letters, and symbols encoded in the widths of bars and spaces making up the bar code. Commonly used bar-code "symbologies" are the Universal Product Code (UPC) representing vendor item markings, and code 128 for shipping-container markings. With applications demanding more information on smaller labels, two-dimensional (2-D) bar codes such as codes 49, 16K, and PDF 417 will be utilized to serve as portable data files. For example, such codes could contain a manifest for an entire shipment, customer information on a direct-mail reply card, or a product's hazardous material handling instructions.

Advantages to bar coding include improved accuracy of data entry, better customer service through faster checkout at point-of-sale, and greater control and reliance on inventory records. For additional information, refer to "Helping to Make the Bar-Code Connection" and "Bar-Code Technology" published in the Winter 1994 and Fall 1992 issues, respectively, of *InfoTech Update*.

Radio Frequency Data Communication

Radio frequency data communication (RFDC) is a technology that transmits data through air waves rather than wires. It provides for greater flexibility for business applications because the technology is not confined to areas only accessible by wire. An RFDC system configuration typically includes a handheld terminal device and base stations connected to a host computer. Base stations are needed in order to control the flow of data from handheld terminals to the host computer (PC, mini or mainframe).

Handheld computers are normally used as input devices for capturing required information. They often include scanners that read bar codes in order to obtain faster and more accurate data input, as well as small monitors for displaying communications between the handheld and host computer. They may be "intelligent" terminals with their own operating system, or devices that receive operating instructions from the host computer. Other peripherals such as a radio transmitter/receiver, printer, or magnetic stripe reader can be added to handhelds depending upon business requirements needed for the job. Examples of handhelds include Symbol Technology's Symbol Laser Radio Terminal (LRT 3800) and Telxon's PTC-960.

With RFDC technology, information entered/scanned into handheld computers is converted to radio signals and transmitted to base stations using radio frequencies known as narrow band or spread spectrum networks. This data is then converted to digital format at base stations and sent to the host computer for further processing or storage.

Narrow band radio frequency is in the 450 to 470 MHz range, with transmission rates up to 9600 bits per second. Spread spectrum, with a 902 to 928 MHz range and transmission rates up to two million bits per second, has greater transmission speeds as well as the capability of supporting larger numbers of handheld data collection devices compared to narrow band. Spread spectrum networks have offered greater potential for expanded applications using RFDC technology.

Examples such as the following show how RFDC technology is applied in the retail industry:

■ Costco discount warehouses uses Symbol's wireless spread spectrum network, Spectrum One, for a variety of tasks, as described in the June 1992 issue of *Stores Magazine.* For example, Costco managers may scan bar-coded items from the sales floor, using a Symbol LRT 3800 scanner, in order to retrieve information such as sales for the week, profitability of an item, and the item's inventory position, or in order to generate a replenishment order.

■ JCPenney utilizes RFDC technology in its distribution center facilities. Steve Hawley, Distribution Center Manager from Buena Park, California, says this technology is instrumental in receiving and warehousing merchandise from suppliers, as well as shipping merchandise to JCPenney stores nationwide. He indicated that the department store evaluated and developed applications for RFDC technology in the late 1980's, with full implementation in July 1993. Benefits realized since implementation have been improved productivity, cost savings, greater inventory accuracy, and better service to stores in order to meet customer needs.

RFDC technology is also used by fork-lift drivers in the JCPenney distribution center. Radio frequency terminals mounted on fork-lift trucks provide work assignments for drivers using applications such as "put away logic" that direct them to appropriate storage locations throughout the warehouse for replenishment or "picking" of cartons. The technology allows for "real-time" maintenance and updating of inventory records as drivers remove, replenish, or confirm inventory quantities. Communication between truck-mounted terminals, base stations or connect boxes, and the host computer is accomplished with a radio-frequency spread spectrum network.

The hardware configuration includes Symbol's LRT 3800 portable handheld terminals and VCR 3910 truck-mounted terminals with an HP T500 as the host computer. This technology is interfaced with Distribution Management System (DMS) software on the host. Benefits provided by this software include reports showing key performance indicators such as "put aways per hour" for each driver, as well as staffing schedules based on amount of merchandise processing required.

■ Other retail applications suited for RFDC technology include taking physical inventory counts, on-hand/on-order stock inquiries, merchandise price verifications, merchandise receiving, and check-in and wireless point-of-sale, as described in the November 1993 issue of *Chain Store Age Executive.*

Radio Frequency Identification

Radio frequency identification technology (RFID) is most prevalent in the retail industry in the form of electronic article surveillance (EAS). It also is used in manufacturing, agriculture, and other industries.

On your next shopping trip to the mall, survey the number of retailers that have tagged merchandise with EAS devices. You will be surprised at the number of retailers using this technology. EAS technology is used as a deterrent to shoplifting as well as a means of controlling inventory costs.

EAS tags placed on products contain a small circuit consisting of a coil and capacitor. As the EAS tag passes through a detection device that emits a frequency field, the tag triggers a radio frequency signal that in turn sets off an alarm. Detection devices are usually at the entrance/exit of retail stores. A benefit of RFID is that the tag needs only to be in close proximity to the detection device and does not require physical contact. The tags can be either disposable or reusable. The disposable tags are deactivated as they are passed by a deactivation device, or when the product is scanned for price at point-of-sale. These tags improve

productivity because they do not need to be located on the product to be deactivated. Reusable tags must be removed from the product to avoid activation prior to leaving the store.

RFID technology also includes electronic access control (EAC) to areas such as buildings and offices. EAC cards contain circuitry unique to each cardholder to allow access only to authorized areas. Access is controlled by radio frequency transmitter/readers located near entrances to each area. Other applications include tracking vehicles in production lines in the automotive industry, automated toll-road collections for billing drivers, and identifying animals for automated food allotments in the agricultural industry.

Magnetic Stripe

Applications using magnetic stripe technology have been around for a long time and include financial cards (bank and credit), store-service cards, and employee security cards.

If you look on the back of your bank card, you will notice the magnetic stripe above the area of your signature. Most financial cards adhere to international standards established by the International Standards Organization (ISO) for information placed on this stripe. These standards recommend the dimension, content, and location of tracks on the stripe. The stripe consists of three tracks, each containing information about the cardholder. Track one contains the cardholder's name, account number, expiration date, space for discretionary data, and supports up to 79 alphanumeric characters. Track two contains the account number, expiration date, space for discretionary data, and supports up to 40 numeric characters. Track three is similar to track two with added room for a second account number, and supports up to 107 alphanumeric characters. It is the only track that will allow you to read and write information to it after each use.

Although most retailers have equipment that reads track two, bank card companies are encouraging the

use of devices that read track one. Since track one has greater capacity compared to track two, track one is more flexible for adding additional services. For example, risk analysis information can be added to track one in order to help determine if authorization needs to be obtained for the purchase of merchandise. The added information may say how long the customer held the card and define the normal dollar purchase range for the cardholder. This would result in cost savings and improved productivity for retailers by avoiding a phone call usually made to obtain approval for the

purchase. *Stores Magazine* indicated that because of the large base of mag stripe readers and related equipment already in place, card companies are trying to work within the ISO standards rather than change them in order to add additional information and services provided by magnetic stripe technology.

The key reason for using store-service cards is to identify characteristics of the customer making the purchase in order to develop target marketing promotions and customer loyalty reward programs. For example, a major retailer provided value certificates to

cardholders based upon previous purchase activity that could be applied on future purchases made with the card.

By having a good understanding of these technologies plus the benefits they provide, you will be better prepared to discuss the impact they may have in your organization or on your clients. For additional technical information on all of these technologies, contact Automated Identification Manufacturers (AIM) in Pittsburgh, Pennsylvania. AIM is a trade organization whose members are manufacturers and suppliers of these technologies.

IT

Personal Development and Information Technology

By Mark S. Eckman, CPA

Mark S. Eckman is a manager with AT&T responsible for inventory accounting integrity and reporting. He is also a member of the Information Technology Research Subcommittee.

When someone asks, "What should I know about Information Technology?," the reactive answer is "EVERYTHING." That's not practical, however, and most of us do not have the time to spend in long training classes. One approach to personal development might focus on a specific area, such as programming. However, a narrow approach to personal development may place your job in line for collection as part of the information technology dividend. Instead, look at five areas that can lead you to a broad understanding, and really allow you to develop.

InfoTech Literacy—If you don't understand some of the new technologies, don't feel lonely. Just as in *Cool Hand Luke*, what we have here is a failure to communicate. You must first

eliminate the misinformation to become InfoTech literate. The news media has promoted the information superhighway as 500-channel cable TV. The media has not separated the infrastructure (the information superhighway) from the products and services it will carry. The only way to gain this literacy is to actively access information about InfoTech.

Reading major news magazines, business publications, and InfoTech-specific publications will give you a broad overview of the area. With each technology you see, ask yourself and others in your work group "how can I use that?" and "why will I use that?" This way, you build the basis for using the facts you accumulate in day-to-day browsing.

Get Weird!—Columbus' peers all believed the world was flat. But Columbus combined astronomy and geometry to redefine geography and conceptions about the shape of the world. The Wright brothers combined internal combustion mechanics and aerodynamics to create air travel. Hewlett-Packard combined the tech-

nology of photocopiers with InfoTech when they developed the LaserJet Printer. Most people view these developments as events that changed the past rather than technologies being co-mingled. But most of the same people also consider the results of these combinations as givens in today's world.

Everyone knows a power user finds a way to make things work with a minimum of technology available. Some of those combinations seem rather strange, but then, the conception of a flat earth exemplified the science of the 15th Century. By crossing technologies, you allow yourself the creativity to redefine their accepted uses. Tom Peters has a new book in which he suggests that businesses should "collect weirdos." Developing and using your own weirdo profile may afford you an immeasurable benefit. Use what comes from mixing technologies to your advantage, pointing the way to the next area for development.

Expand your personal use of InfoTech—Penicillin was a mistake—and a profitable one for society. To truly benefit from InfoTech, you need

to experiment and not be afraid to fail. All humans make mistakes and learn from them. Try new ways to use technology. Look for tips from others in your group by asking questions—it shows a working mind, and your interest in exchanging ideas with others. You cannot exploit your use of InfoTech if you only ask questions where you already know the answers.

Trying something new helps you understand the nature of the technology, and expands your knowledge. If it fails, examine why and learn from it. If it works, ask yourself how it can work better.

Understand the Standard— Did you see the TV interview where Ted Williams explained the difficulties in hitting a baseball for Michael Jordan? Applications of technology place a limit on your effectiveness. This statement, although difficult to accept, is true. You control the limits by understanding the standards for that technology. The standards may be linked to the technology (for example, Windows), or something imposed on the technology (such as Electronic Data Interchange). Understanding the standards allows you the fastest rate of personal InfoTech development, since most of the standards have good documentation.

Be Invisibly Visible—Elvis Presley earned more money in the years since his death than during his life. His estate has visibly promoted an invisible personality to the joy of his fans, worldwide.

As companies search for ways to cut costs, InfoTech will put many people to work at home, and change the very nature of work. Your connection to the office will be the technology that delivers your work products and communications to your customers—but that only makes you invisible. If you don't adapt to working in an unstructured, free-standing, InfoTech environment, you will either lack visibility, or become a very visible thorn. You don't need to be in constant contact with those people we used to call "the boss." Instead, let them know you have gotten the job done in an effective and profitable manner in the best way possible—earn compliments from your customer.   **IT**

The Internet and Accountants

By Daniel E. O'Leary, CPA

Daniel E. O'Leary is on the faculty of the School of Accounting at the University of Southern California. In this article, O'Leary discusses the benefits of the Internet.

After getting a cup of coffee, the first thing I do at the office each day is check my electronic mail (e-mail). After the e-mail has been answered, I then check the phone mail. Later, I check the regular mail. Generally, person-to-person communication is done by e-mail. I have seen the Internet grow from being used by what seemed to be mostly computer scientists, to the point now where most everybody I know has at least tried e-mail.

The basis of the growth of e-mail has been the growth of the Internet. The Internet may be difficult to navigate for some, but there are several search tools on the market to help; Gopher, Archie, and Wide Area Information Services (WAIS) are a few. Gophers offer a connection to Internet services through a menu system. Archie enables the user to search File Transfer Protocol (FTP) sites for specific file names. And by using WAIS, you can search computer libraries for information on practically any subject.

There are several ways of accessing the Internet: by modem connection to a national host system such as America Online, CompuServe, Delphi, or Prodigy; by modem connection to an Internet-specific service, such as Panix in New York; or by direct connection to an Internet service provider, such as Performance Systems International (PSI) in Reston, Virginia.

The Internet is not a service, but an electronic network of computers that includes nearly every university, government, and research facility in the world, plus many commercial sites. The 7 to 15 million people with a connection have access to the libraries of all of its sources—from the databases of the Department of Agriculture, to census material, to sports schedules and everything in between.

(*PC Magazine*, March 15, 1994, p. 112).

Things have progressed to the point where CPA firms can benefit from the use of the Internet. In particular, the Internet can be used to communicate with clients and other professionals. The Internet also opens up a number of information resources, e.g., Gophers, newsletters, and electronic magazines. It allows a user to access shareware, utilities, and bulletin board services (BBS). According to an article in the June 1994 issue of *Accounting Technology*, the Securities and Exchange Commission (SEC) is making its entire library of documents filed by public companies available on the Internet under a two-year pilot program. This will allow accountants access to the 10K forms of companies to help them in preparation of financial statements.

With the Internet it does not matter if the person is in or not. An e-mail message can be left anytime. E-mail is particularly useful for communication when the client is in a different time zone (an increasing problem with the growth of multinational firms). Unlike

voice mail, detailed messages can be left that include data and other information. In addition, entire documents can be sent through the Internet. As a result, the Internet can facilitate the joint authorship of various documents and workpapers.

The Internet can be used as a gateway to information resources. Gophers are one of the primary sources of information. Gophers allow the user to maneuver, in an organized way, through millions of files stored on the Internet using a series of menus. It is one of the Internet's easiest navigational tools to use. Users explore by making selections from a series of numbered menus. At the University of Southern California, a Gopher is available that will include the papers for the 1995 American Accounting Association national meeting (in the University of Southern California Gopher, under the School of Business). Virtually all universities have Gophers. In addition, there is a Gopher that provides information about the implementation and use of Internet tools, called "Clearing House for Networked Discovery and Retrieval." For information about this Gopher, contact George Brett or Jane Smith at their Internet addresses— "George.Brett@cnidr.org" or "Jane.Smith@cnidr.org." Internet addresses usually contain a minimum of three parts: a user ID followed by a @; an agency name; and a suffix denoting something about the address, i.e., the type of agency that maintains the user's account. Commercial services that offer a gateway to the Internet have further address requirements. In addition, the Internet has been used for distributing a variety of informal and formal newsletters and newspapers. Currently, there are a number of informal daily newsletters that are available on the Internet. Generally, these newsletters contain edited conversations, announcements of meetings, announcements of publications, and a variety of other discussions. For example, a moderated Internet mailing list has been started through the Computational Organization Design Lab at

Four of the major on-line services are: America Online, CompuServe, Delphi, and Prodigy. They all offer starter kits which include a communications software, reference materials, and usually an initial service credit.

America Online:	800 827-6364 $9.95 per month, $3.50 per hour after first five hours
CompuServe	800 848-8199 $8.95 per month, $9.60 per hour for "Extended" services
Delphi	800 695-4005 $20.00 per month, $1.80 per hour after first twenty hours, or
	$10.00 per month, $4.00 per hour after first four hours
Prodigy	800 776-3449 $29.95 per month, $3.60 per hour after first 25 hours

the University of Southern California. The lab is concerned with organizational design for reengineering, among other topics. This list, called COR-list (for "Computational Organizational Research"), can be subscribed to by e-mailing to "COR-List-Request@usc.edu."

There are also formal magazines available. For example, "HOTT-LIST-RELAY@UCSD.edu" has topics on virtual reality, the information superhighway, mobile computing, and a wide range of other technology subjects.

An Internet newspaper is available (at a charge). For information, contact "info@clarinet.com."

Because the Internet is so extensive, it has been used for advertising - but there has been substantial controversy regarding such usage. Recently, the Internet was used to advertise a book published by a university. There was much discussion on the Internet about that process. In general, there seemed to be a consensus that if the

author was the one posting the information, there would not be concern; otherwise, virtually all that commented did not like the idea. In addition, as noted in the *Wall Street Journal* (May 9, 1994 B2), a husband-and-wife firm launched a business designed to help others access Internet news groups. The reactions included one firm that noted that the law firm had taken "grotesque advantage" of the technology.

Potential security problems are an important limitation of the Internet. Some CPA firms have not adopted the use of the Internet because of security problems. Although at this writing, no accounting firm has yet experienced an intrusion, other institutions have had security intrusions. As a result, an important issue is to ensure privacy of data for its users. Security can be accomplished using either firm-specific or commercial products.

Learning how to use the Internet is made possible by a number of books on the market, including Mary J. Cronin's *Doing Business on the Internet: How the Electronics Highway Is Transforming American Companies* (Van Nostrand Reinhold), Bernard Adoba's *The Online User's Encyclopedia: Bulletin Boards and Beyond* (Addison Wesley), and Tony Abbot's (ed.) *On Internet 94* (Mecklemedia). **IT**

Auditing Standards Division Announces Release Of Auditing With Computers

The Auditing Standards Division has just released an Auditing Procedure Study (APS) entitled Auditing With Computers. This APS discusses types of computer-assisted audit techniques (CAATs), how each one works, their advantages and disadvantages, and which tasks each one performs. It also contains a detailed case study and a step-by-step description of the CAAT implementation process. Publication No.# 021057: $27.50 for AICPA members; $30.25 for non-members. To order this publication, please call the AICPA Order Department at 1-800-862-4272.

INFOTECH
Questions & Answers

Laptops

Q – I have a laptop computer with no room for a network interface card. I need an Ethernet card that has connections for both coaxial cables and 10Base-T lines. What types of external devices are there, or should I purchase a docking station?

A – The solution depends on whether you need the network card for mobile computing. If your network usage is restricted to one location, your office, for example, a docking station is probably the right answer. However, if you need a mobile solution, there are several external products that utilize the parallel or serial port of your notebook computer. The most popular solution is the Xircom external dual media parallel port adapter which also gets power from either a wall plug or your keyboard port.

Contributed by Val Steed, CPA
Steed Consulting

Q – Currently, our firm is using the Toshiba T1900 Satellite Laptop with the serial micropad numeric key pad produced by Genovation—which seems to work fine for DOS applications. However, recently we started using Windows for multi-tasking and have discovered that when we use the key pad, it dramatically decreases the speed of the computer. We are looking for another key pad that will work in Windows, but that will not affect the speed. Any suggestions?

Contributed by Bruce M. Taylor, CPA,
Rockoff, Harlan, Rasof, Ltd.

Editor's Note: If you have any suggestions for Bruce, please fax them to my attention and they will be forwarded to him. Fax your response to Nancy Cohen (212) 596-6024.

Do you have questions on information technology? Qs&As is designed to provide a forum for IT members to raise questions relating to technology. Send your questions to:

Nancy Cohen, CPA
Editor—*InfoTech Update*
AICPA
1211 Avenue of the Americas
New York, NY 10036-8775

InfoTech UPDATE

AMERICAN INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS
Information Technology Membership Section
1211 Avenue of the Americas
New York, NY 10036-8775