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Technology Explosion Causes Critical Skill Shortages

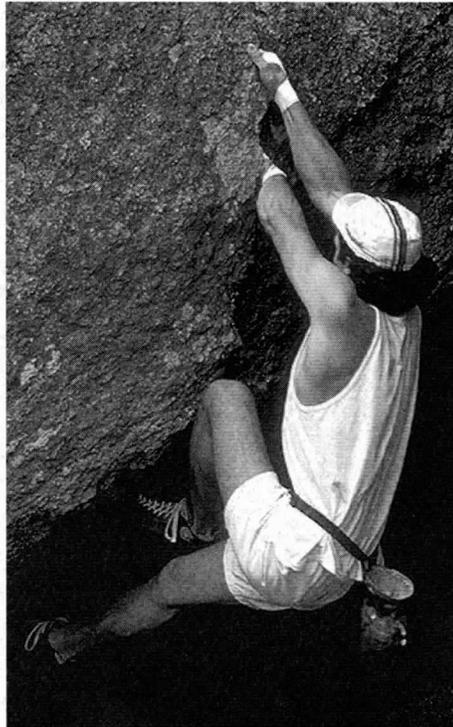
Multimedia, GUI, and new tools force many organizations to re-evaluate thinking

As technology marches ahead, within many firms there is a need for skills that are in short supply. New processors are coming out that have sound cards, CD-ROMS and high resolution displays. With this as a background, let's look at the skills that most people have.

Traditional businesses are driven by paper and voice communications. Most computer systems have been designed around this constraint. We are now at the point where this is no longer the case. Today we have the "now generation" that has been weaned on television and all of the action that it brings. Organizations are now at the point where they must recognize how and where to apply limited capital. At the same time there is an explosion in all of this new technology.

Skills that have not been taught to many are now the ones that are in the greatest demand. Understanding of color and image relationships, as well as motion and composition are needed even more than coding skills. In addition development tool kits are eliminating the need for traditional programmers in most organizations. Even the major software developers are using tool kits for Visual Basic and Powersoft to generate applications.

The profile of skills that currently are in the shortest supply are all associated with desktop and client server applications. In addition in even shorter supply are those same sets of



CD-ROM Is Only A Transitory Storage Technology

CD-ROM's will continue to cost too much as write once devices - a new medium will come forward

The growth of CD-ROM's has been astounding. At present the drop in the price of CD-ROM recording equipment below \$3,000 makes this look like a great alternative for mass storage of information.

Unfortunately, it is the microfiche of 1994. After the novelty of one-half of a gigabyte on a \$25 blank wears off, many will begin to look at the next generation of recordable media.

Look at what a CD-ROM can hold -- at double speed, 60 minutes of full motion video and sound -- at triple speed, 20 minutes. That is not all that much when you consider the requirements

for an interactive training program or kiosks operation.

PhotoCDs from Kodak have a limited capacity. For example, Corel is selling CDs with only 100 photos on a single disk. Now lets add the multiples of CDs that are required by an active user, and we see it will not be a very attractive storage media. But for static documents it is much better than microfiche.

One problem that those who have worked with CDs have discovered is they scratch easily and are difficult to handle in "dirty environments". Also consider the requirement to have a caddy to put the CD into a reader --one more chance to damage the data as we take it out of the jewel case and put it into a caddy or reverse the process -- and you have a media that can be damaged easily in normal operations.

It is easy to see this is not a very friendly
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Technology Explosion Causes Critical Skills Shortages

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people who have multimedia capabilities. Based on what we have seen, this shortage will only increase in the long term.

What are you to do?

Experience has shown, when organizations look to their own staffs, they can not find people who have these skills. When ads are run for those positions, few if any qualified responses are received. Universities continue to teach Pascal (a totally useless skill) and ignore the needs of the business community (the ones they are supposed to support).

Some organizations are starting their own internal training programs to develop those skills. In the case of Powersoft they are providing personal copies of their individual developer's tool kits to those who attend one of their classes. All of this points to an opportunity for those individuals and organizations that get their acts together and have the right skills on board.

No need to keep hitting your head against a wall

There are a number of things that you can do to address this problem directly. They involve some work on the part of your organization but the rewards are great.

Start by creating an inventory of the skills that exist within your firm now. This means looking beyond your organizational boundaries. There are others in your firm that have started to look at the same issues. They may even have some first hand experience. Places to look include your communications and advertising groups.

Once you know what skills you have, it will be easy to identify the areas where you have the greatest need. You can then create a plan for how to:

- Upgrade/train the existing staff
- Hire individuals with the right skill
- Outsource critical "new age" work



Retrain Staff

We have found that it is very difficult to retrain many traditional Information Processing professionals to fit into the new environment. One of our clients found that the failure rate of these traditionalists was well over 50% within the first twelve months. Another organization that was not as demanding as the first had a failure rate of well over 30%. The general characteristics of the successful individuals can be summed up as: "They had already seen the writing on the wall and had actually started to do something on their own."

There was one group that had a 100% failure rate. In that group the individuals were "mainframe bigots". They did not have a PC as a work station and did not have a PC at home.

Be aware that, if you do not try to retrain your existing staff, you can run into some legal problems associated with age discrimination.

Hire Skills

This may sound like a panacea but it is not. One of the greatest problems is that there are few individuals in the job market that have the currently "hot" set of skills. Those that are there are typically not the ones that you want to hire as long term employees.

The process of recruiting these individuals is very difficult at best. The contingent placement firms are not geared to the new skills as of yet. They still think that CD-ROMs only play Bruce Springstein music. Hiring the skills away from the limited number of organizations that are working in that area will only cause a bidding war to start. In one case not too many years ago, Hogan System programmers were commanding over \$100/hour plus expenses for average to poor skills.

Outsource

This is the least attractive of the alternatives, but the one that will provide you with a good short term fix. In this case remember the things that you have to do to maintain control:

- ✓ Have project management and documentation maintained by your own internal staff.
- ✓ Have at least one individual from your staff work directly with the outsource resources -- you can use this as a good training environment.
- ✓ Maintain control of the look, feel and sound of the application -- you do not want to have to reinvent what you are paying them to do.
- ✓ Limit your outsourced projects with this new technology to the first one or two only.

When all is said and done, the need to have an internal R&D group that will provide training on new technologies is paramount. There are a number of organizations that have created "test labs" for this purpose. If you don't want to hit your head into this wall you should start now. 

CD-ROM Is Only A Transitory Storage Technology

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technology and one that is prone to errors.

Let us assume that we have made an undetected error as we record onto a blank. This will mean that we will have a very expensive onetime use razor blade. There will be a strong push by some to force this technology into the industry because of the capital investment that has been made in the duplication technology. When I was child my father used to use a "Blue Blade" - a onetime use item that had a lot of the same problems. I use a rechargeable electric razor today. The CD-ROM is our "Blue Blade".

This technology will be okay for the next twenty-four to thirty-six months. As we look beyond, there are a number of other mediums that will work much better. In addition they should be easier to handle with the new operating systems that are coming.

What they will be is not clear as of yet, but I can give you some characteristics of what they will and will not do.

- ✓ Read and write many times - a feature to make it write only under external control but inaccessible by the "common user". This will be an important feature for both software developers and the consumer market.
- ✓ Portable and protected from the environment - it will also be a very durable product and something that can take a lot of bouncing around. It will have to be able to withstand the abuse a common calculator takes in a typical brief case today.
- ✓ High capacity and data transfer rate - it will be able to store at least 5 Gigs of data in a format that will be reasonably small but not so small that it can be lost easily. It will also have to have a very standard interface to the computers of the day.

- ✓ Low cost - cost equivalent to \$3 to \$5 per unit. This will be critical for the advancing of the technology to the consumer market. Without this it will not have the necessary mass appeal to make it a financial success.
- ✓ Long stable data life - built in to the medium will be self correcting capabilities such that if something fails the data stored will not be lost. In order to displace the CD-ROM this is a must -- especially if the medium records the data electronically.

If all of these features are available on this new medium, it will be one that will have many applications in both the commercial and consumer world.

Is such a medium any where near reality? In crude form, yes. The PCMCIA 150 Meg disk drives and the read and write many times optical disks are good first steps. But the real device will probably appear at a trade show in the next twelve to twenty four months.

When it comes out it will be interesting to look at all the applications that it will drive. Mass back up mediums will be revolutionized. Laptop computers will have the data capacity of 85% of all mainframe data centers today.

The wonder of such an approach for data storage is that it will drive the next generation of information technology. Without it the true multimedia applications of tomorrow will not work. With CD-ROM or the "new medium", the need for the massive information highway that everyone is talking about may be partially eliminated.

Our vision is that this product will be a reality in the near future. What we have to do now is look very carefully as we invest in infrastructure over the next several quarters to see how our approaches would be altered with these new capabilities.

Best of all is the fun in seeing which of the high tech companies will be able to respond to this new market. I will bet two companies that do not make it are DEC and IBM... 

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Forecast for the National Information Systems Market

Demand for a "new " class of professionals increases as the supply of dinosaurs expands with continued downsizing

by M. Victor Janulaitis

Professionals looking for new ways to advance their careers are starting to focus on the basics. What you manage and/or the size of your organization is no longer important. The question to ask is what value you and your function add to the business. The watch words of the today are -- "size pollutes".

Downsizing has been good because it has eliminated a number of unneeded and counterproductive functions in many organizations. The types of people that have been and continue to be effected are those from large organization's nonproductive overhead functions. They provide little or limited "value added".

During this recession and its minor recovery many businesses have had to rethink the way they do things. There has been a continued reduction in force ("RIF") of traditional functions within many larger organizations. Jobs that once were guaranteed for life are now being evaluated with two concepts -- Value Added and Zero Base Budgeting. To date most of this has been in larger organizations. Now is the time that medium to smaller organizations are going to feel the bite of "downsizing".

A number of factors are causing this to happen. First the tax increase is finally being felt by many. This is magnified by the uncertainty of the stock market which rises on news of a pending recession and falls on news of a recovery. Second the rapidly changing technology market is making the infrastructure that supports most of these organizations technically obsolete. Lastly, most of the larger organizations have re-engineered their business in the last few years and are now giving those mean, lean medium sized companies a run for their money.

What is happening now is going to be very interesting to watch. Will the great job engine of small to medium sized business slow down? Will the new tax law finally show its ugly head in a recession? What will be the impact of a new tax on these businesses for a National Health Care Program? Time will tell.

In the last several months Utah has been a great job market. As a result there is a real shortage of housing and those costs are skyrocketing. One company planning a move from "Sunny" Southern California found that it was going to

have to provide a cost of living adjustment to those employees they were moving. Housing, food and clothing costs were significantly higher. At the same time housing costs in California have dropped to the point that they are in line with most other cities. Call me a cheerleader but this sounds like the start of a come back for Southern California.

Of all the issues that impact the future, education continues to get the short shift with most professionals. Everyone needs to invest in themselves today or they will not have a job in the future. Over the last several weeks, I have seen a number of American Dinosaurs. They come in various shapes and sizes but they all have the same characteristic. They have not learned how to adapt in our changing world. Remember there are only a few people that will be lucky enough to retire in the jobs they have. For the rest of us there will only be two choices -- either we will be let go or we will quit.

The competition will continue to be great, but those who are well prepared will find there are more opportunities today and in the future than ever before. If you do not want to be an American Dinosaur you need to get ready for your next job.....

Vic



Published by:

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Location	Prospects Short Term	Prospects Long Term
Northeast	Good	Good/Poor
Mid-Atlantic	Good	Good/Poor
Southeast	Poor	Poor
South	Good	Good
Midwest	Very Good	Very Good
Southwest	Good	Very Good
West	Good	Very Good
Pacific Northwest	Poor	Good
Best Location	West	West / Northwest