The Northwest
CyberArtist
The Newsletter of Northwest CyberArtists

June 1993 Volume One, Number Five

Managing Complexity

By Allan Tamm

CyberArtists, by definition, must deal with issues of complexity. The CyberArtist moniker is derived from the term *cybernetics,* which according to Webster's New World Dictionary was coined in 1948 by Norbert Wiener from the Greek *kybernan,* meaning to steer or govern. Furthermore, *cybernetics* is defined as "the science dealing with the comparative study of human control systems, as the brain and nervous system, and complex electronic systems." Did someone say "complex"?

Forty-five years after the birth of cybernetics, the computing revolution it spawned is in full bloom, and change is perennial. Hardware and software standards continually evolve, helping to provide an infrastructure upon which computer technology can interface with its users and the world. As the computing technology matures, it becomes easier to use. But then we ask it to do more and it becomes more complex and harder to use again. This is the paradox of the two often opposing forces, innovation and standardization.

Furthermore, as the revolution continues and computing is redefined, yesterday's standards become obsolete and the promise of greater future capabilities begs the question, "*can we be satisfied tomorrow with what we have today?*". As a result, even if complexity is adequately addressed at an instant in time, it is an issue that won't go away.

The best technology offers greater control, ease of use and flexibility, and these are the things that we need more of, right? Well, maybe so, but not always. Control and flexibility are two of the most important faces of complexity. The "ease of use" can come at a cost of greater complexity which must be understood in order to successfully obtain the utility. So be prepared to understand more information and make more decisions, potentially in every phase of your endeavor, when you choose greater control and flexibility.

How does one decide where to draw the line on complexity? Since complexity isn't directly measurable, a subjective evaluation is called for. Trust your gut. No matter how you initially choose, you'll probably find yourself making adjustments anyway as you grow in experience. The most important thing, I believe, is to reach a solid understanding of what the *experience* is that you most want to have. You may not have a strong sense of this when you first start out. But given some time and experience, you will come to know that, and managing complexity will become much easier for you then.

Here are my top 10 suggestions for managing your complexity level:

1. Before you commit to a technology or product that is new to you, be sure you understand what using it will be like. Hands-on experience is the key, so arrange to get a walk-through of as many of the processes as you can. Sometimes just a little extra complexity in the wrong place can make a critical difference in whether or not a product is suited to your needs.

2. Think about how your creative processes will be changed by the presence of the technology you are considering. Be cautious about introducing complexity into the creative process, particularly if spontaneity is a requirement. I was a participant in a beta test program for an interesting software program that combines MIDI sequencing and music notation. I've done plenty of testing in the past, and it's still exciting to be offered the opportunity to make suggestions that may be incorporated into a new product. There are also intangibles such as personal recognition, and tangibles such as free software.

But the beta didn't end as soon as I had anticipated, and eventually I realized that the software testing responsibilities I had accepted were taking up the only time I had available to play music. On top of that, I was already dealing with complex software issues during my full-time day job. In short, I had overbooked myself with complexity. So, despite the attractions, this clearly was not the experience that I needed at the time. It was a relief when I withdrew from the beta program and returned the software.

(continued on page 4)

Last Meeting:

Craig Anderton gave us a wonderful bit of information on dealing with receiving wonderful bits of information, and then opened the floor to an interesting Q&A session. Thanks Craig.

Next Meeting:

June 7th, 7:30 pm at the Art Institute of Seattle, Room 611/612, 2323 Elliot Avenue, Seattle

Craig Rosenberg will be presenting some basic information discussing the tools and techniques associated with designong, programming, and using virtual environments. Craig is a graduate student at the University of Washington investigating the human factors aspects of virtual environments.

A Look Ahead:

July 5th: Pro Audio Guru's panel, including Greg Mackie!

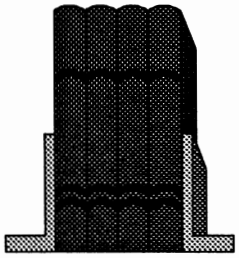
Upcoming dates include: Silicon Graphics, Lone Wolf and more!

May Reviews

by John Hokenson

The Northwest CyberArtist received two items for review this month—The Big Green Book, published by NIE Publications (John "Buck" Ormsby); and *Winter Wolf*, a thirty minute video production by MIRAMAR.

For those just starting out in the local (Vancouver, Seattle, Portland) music scene, *The Big Green Book* is an *extremely* useful reference book to have on the shelf. Sections include: Artists; Booking, Management, Promotion, Live Shows; Education & Organizations; Equipment & Manufacturing; Image; and Media.



Buck and the staff at NIE have managed over the years to garner a pretty complete listing of who's doing what and how to contact various groups, representatives and companies. Particularly interesting to read through (and study) is the introduction by Frank Harlan (NW Rock), Ed Beeson (The Backstage), Sanuek Stephens, Craig Martin, John R. Gilbreath (Earshot Jazz), Mark Rose (MCA Records), Daniel Sause (Locals Only), Travis Smallwood (International Promotions) and David Lang (How's Bayou). The only minor disappointment was discovering that although one of the NIE staff had called me and gotten the updated information for the Northwest CyberArtists listing, the changes did not make it into the 1993 edition of *The Big Green Book*—we are still NEMUS. Oh, well...

MIRAMAR's recent video, *Winter Wolf*, was directed by Kathleen Phelan. This release is part of the "Legend Series", which are comprised of *Gift of the Whales*, *Spirit of the Eagle* and *Winter Wolf*. Filmed in and around Cle Elum (in Eastern Washington for those "non-natives" reading this), *Winter Wolf* is an interesting and informative look at the wolf populations of the Western United States. I can especially reccomend this video to those with childeren as a way to learn more about this endangered species.

The Big Green Book is available from NIE Publications, (206) 524-1020. *Winter Wolf* is available in your local video store or from MIRAMAR, (206) 284-4700.

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Member Information & Events

Shallowhead
with Paul Wynia
June 20
Rendezvous
June 23
ColourBox
July 7
The Weathered Wall

Julius Brown Visuals
will be performing with the band
Diamond Fist Werny
June 25 @ ColourBox with Kilgore Trout and Gross National Product.

Julius will be projecting **large screen video and computer images** in synchronous collaboration with **Diamond Fist Werny!**

The Same
(Einar Ask)
June 23(9:00pm)
ColourBox
July 14 (11:00pm)
The Weathered Wall

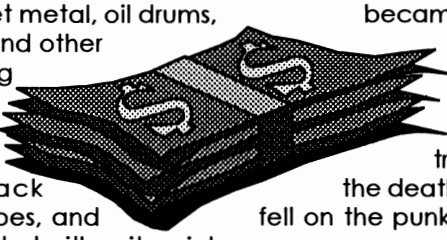
CONSUMER REVOLTING

By Paul Wynia

Welcome to the world of the performing and recording musician! Recently I was asked to begin writing a column for the *Northwest CyberArtist* that was to focus on local "Industrial" music.

As a member of the Northwest Elektro-Industrial Coalition (N.E.C.), I naturally jumped on the opportunity to write about what I and my other favorite local bands are currently doing here in Seattle. First off, though, let me try to explain what Industrial music is and where it came from.

Industrial music is most accurately traced back to England and Europe where in the late seventies, bands were exploring alternatives to traditional instrumentation. Combining items such as sheet metal, oil drums, industrial springs and other manufacturing tools with their own even more home-made devices such as feedback boxes, looped tapes, and metal grinders loaded with guitar pick-ups, they created a whole new sound. Naturally this sound was very disonant and abrasive, with the prevailing motto of "Noise Annoys".



From these harsh beginnings the Industrial music scene, initially an offshoot of Punk, began to create its own sub-genres. These sub-gnres combined elements of one another but with each heading off in their own directions. There were the "Ambient Industrialist", the "New York Noise bands", "Industrial beat/dance groups", "Techno/Elektro Industrialist", "Industrial Metal hybrids", and more. Still, the common thread among these diverse bands remained the allegiance to the Do It Yerself/Create It Yerself attitude in their instrumentation and presentation.

Many of these sub-genres came into being with the highly effective and influential incorporation of electronics and synthesizers into the music, which allowed bands such as Cabaret Voltaire and Throbbing Gristle to create sounds and textures never before experienced (a strong motivator in industrial). With the coming of the electronic sampler, the opportunities became limitless and remain so even today. It is with this everchanging environment to feed on that industrial was able to escape the death of stagnation which fell on the punk scene from which it sprang.

One problem (or advantage, depending on your angle) with such sonic experimentation is that it limits your audience and often your acceptance into more mainstream areas of music. From this frustration came the N.E.C., a collective of likeminded Industrialist (most with a strong bend towards the elektronic end) who were unable to find club bookings in the Grunge Capitol of the World. We also lacked a strong local audience support even though touring bands drew crowds in the hundreds and even thousands. Over the last few months things have vastly improved for the eight bands, with a weekly showcase at Rendezvous (Sundays), the Weathered Wall (Wednesdays), and more frequent bookings at other clubs. The N.E.C. has its own newsletter (Misery Foundation) and is about to complete its first compilation tape (Contents Under Pressure) in addition to each of the bands' own demo tapes.

Over the next few issues, I'll introduce you to some of the bands (who are, by the way, And Christ Wept, Syntesia Murder Program, Kill Switch...Klick, ShallowHead, Sex with Sarah, Noisebox, and Terminal) and more importantly to the way in which they use technology in their music. This is something I hope many of you will find interesting even if you are not interested in the music itself. I will also be talking to others about the way they work and look forward to hearing from all of you with your own ideas, thoughts, and reactions. Till then...

Paul Wynia
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Seattle WA 98115

Last Call for Performers and Exhibitors

By Bob Moses & Steve Macatee

This is the ***last call*** for performers and exhibitors in the first annual Northwest CyberArtists Extravaganza. So far, about half a dozen people/groups have expressed a desire to be part of this event. If you are interested, you still have until June 8 to come forward.

We're still unclear as to what exactly we are going to do. Some of the people on the bill are musicians, others are electronics engineers. This is a very intriguing mixture of talents, and will surely lead to a rich collaboration. It looks like we'll have a stage show with live music and possibly "cyberdancing." We'll also have a small exhibit of interesting new technologies.

If you want to be part of this show, please contact either of the two people listed below. Thanks to everyone who's comitted to this project.

1st Annual Northwest CyberArtists Extravaganza Staff

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A Book about Complexity

reviewed by Trudy Myrrh Reagan

Complexity: The Emerging Science on the Edge of Order ands Chaos
by M. Mitchell Waldrop (Simon & Schuster, NY 1992, $23 hardcover)

In 1975, Benoit Mandelbrot invented what he called the "mathematics of wiggles," naming the functions he was exploring *fractals.* In several fields he noted that disorderly problems, ones with nonlinear equations which had always been shunned, were now amenable to exploration. About ten years ago, research in disparate fields such as meteorology and biology began to be linked by the new theory of chaos. Fractals were subsumed under the mathematics of *chaos.* Computer graphs of chaos and fractals made understanding the data easier, and their visual beauty drove many artists wild with delight.

All knowledge is one. Yet, the way turf is divided up in university and research settings, compartmentalized thinking gets Nobel prizes and forging links does not. Therefore, unifying elements between fields are too often missed. But suddenly, economists, physicists, biologists, computer scientists, neuropsychologists and others have come together to hatch yet another unifying principle using nonlinear equations and computer simulations: complexity. The focus of activity is at the Santa Fe Institute in New Mexico. George Cowan, former head of research at Los Alamos, founded it in 1984 to counter what distressed him about contemporary science: tunnel vision.

Quotes from the book help define complexity:

> Think of the way a leaf seems to flutter in a steady breeze... the complexity is pretty simpleminded. There is one set of forces — from the wind, in the case of the leaf. Those forces can be described by one set of mathematical equations. And the system just blindly follows those equations forever. 'I wanted to go beyond that, to richer forms like biology and the mind,' says [mathematician Norman] Packard....
>
> Darwin didn't know about self-organization — matter's incessant attempts to organize itself into ever more complex structures, even in the face of dissolution...So the story of life is, indeed, the story of accident and happenstance, declared [biologist Stuart] Kauffman. But it is also the story of order: a kind of deep, inner creativity that is woven into the very fabric of nature....
>
> "At each new level of complexity, entirely new properties appear. [And] at each new stage, entirely new laws, concepts, and generalizations are necessary, requiring inspiration and creativity to just as great a degree as in the previous one. Psychology is not applied biology, nor is biology applied chemistry." (Physicist Philip Anderson on properties of emergent structures)....
>
> And suddenly [physicist Murry] Gell-Mann and the others realized that they'd left a gaping hole in their agenda: What do these emergent structures actually *do?* How do they respond and adapt to their environment?...
>
> Ecosystems, economies, societies — they all operate according to a kind of Darwinian principle of relativity: everyone is constantly adapting to everyone else.... Organisms in an ecosystem don't just evolve, the co-evolve....

It is the zone of complexity where the most creative things happen. For example, the most flourishing incubator of life on earth is not the seashore (too much simplicity) nor the ocean depths (too chaotic), but on the continental shelf (where complexity can organize into interdependent systems). The most interesting life systems, it is said, abide at the very edge of this shelf. This suggested to me the following: Too simpleminded = kitsch, wonderfully novel and complex = Art, too chaotic = Gibberish. And, funny thing: some of what sounds like gibberish to one generation is poetry to the next, meaning that the audience co-evolves with the artists, writers and composers.

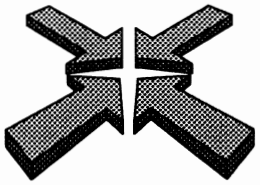
(continued on page 5)

Managing Complexity

(cont. from page one)

9. Become organized in ways that simplify your processes. Inconsistent practice (being disorganized) defeats the advantages of control. Your best shot at success is to develop simple processes which can be documented, learned and used repeatedly without distraction.

10. Have a game plan in case your technology should fail. This might mean that you have redundant systems. It might mean that you have a fallback technology that you can switch to if necessary. Or, if nothing else can be done, it might mean that you have a no-technology backup plan. This is essential if you are doing public appearances.



It's easy to see that if you aren't getting the results you want with a given technological approach, you should check it out to see where things stand. What's not so obvious is that you might want to check things out even when you *are* getting desirable results. Given a high level of complexity, it becomes easy to lose contact with one's original purpose as you accept the additional responsibilities of managing the complexity.

If you're clear about the experience you are looking for, you'll recognize when you go off track sooner and you'll be better able to reach decisions if they are called for. It just might be that you *can* manage the complexity, but doing so isn't what serves your needs best. Or maybe you'll find some piece of the technological puzzle which fascinates you endlessly, and you'll embark on a new career.

Once you make your technological choices, accept the results you get without considering them good or bad. Then you'll be ready to get the most out of your experience. If you take the plunge into new technology with an open mind, you'll not only learn something about the technology, you'll likely learn something about yourself that you didn't know before. And that's probably the best thing that could happen.

Alan works for Microsoft Corporation in Windows Developer Support, currently is learning to play hammered dulcimer and to program in C++ (but only at separate times), and can be reached on CompuServe at [71712,1252].

From the Editor

by John Hokenson

It had to happen sooner or later. We've finally done it. *The Northwest CyberArtist* has expanded to *six* (count em!) pages! With the influx of material from our members, the addition of regular columnists, local events and the increased output from the musicians among us—we just plain ran out of room. Along this same vein, you may ask—why does it say *May Reviews* in the June newsletter? Well—there wasn't room to include it in the May *CyberArtist!* Don't misunderstand, as an editor who remembers *pleading* with the members for material, I am in heaven.

In a continuation of the ideas introduced in *Executives of Information* by **Craig Rosenberg, Allan Tamm** talks about dealing with the vast amounts of complex information we are inundated with in pursuit of our CyberArtist activities. His ten suggestions should prove very helpful to those of us who feel we are drowning in "tech stuff."

For those looking to improve their musical or production skills, check out the letter from **Keith Evans** below. The *Digital and Electronic Music Program* at Edmonds Community College, started by **Jim Guard,** is quite an operation. If you live in the north end, check it out. You won't be disappointed.

At this point, I would like to welcome **Paul Wynia** as our newest regular columnist. Paul will be reporting regularly on the local Industrial Music scene and its implications to CyberArtists (Northwest and otherwise). His thumbnail history of the evolution of Industrial Music in this months' column is especially fascinating.

Last, but not least, **Einar Ask** reports on his successes and failures at his recent performance at the *Rendezvous.* Last month, he told us how he was planning to combine live performance and taped material (on DAT, of course) to wow the audience. This month, he tells us what worked and what *didn't* work. Five things that didn't work and five things that *did* are presented and discussed. Essential reading for those contemplating live performance with taped/sequenced backing. Also, I'm glad to see the episode didn't make you gunshy, Einar—I'm looking forward to hearing your report on the *next* live performance (see the times and dates on page two)!

In conclusion, I would like to take this opportunity to thank **Einar and Juli Ask** for going beyond the call of duty. In spite of recent illness in the family and untold hours spent in hospitals, they were able to copy edit and layout this month's *CyberArtist.* Thanks also to **Steve Turnidge** for his untiring efforts to bring this all together. You won't find out from them the countless hours spent making Northwest CyberArtists a reality, but I'm not afraid to "bring them out of hiding." Thank you, all.

Letters to the Editor

Dear John,

I would like to let you know that you need to make a change to your mailing list for the CyberArtist publications, and to do so, I'll introduce myself.

My name is Keith Evans, and I have taken over the Digital and Electronic Music Program at Edmonds Community College. Jim Guard, my predecessor, has moved to sunny California. I enjoy your publication and appreciate receiving it.

For your general information, our digital music program is fairly unique on the West Coast. We offer complete training in all forms of synthesis, MIDI, SMPTE/MIDI synchronization, and are developing a program for students interested in learning to digitally score film and/or video productions. This extension to our program will also cover digital audio post-production techniques.

Jim Guard compiled a spectacular collection of traditional analog synthesizers. A partial list of our analog machines include ARP 2600, Roland System 700 Modular, a very mint Mini-Moog, and about a dozen other classis analog synths.

But that is just the start. Our digital music building also contains four separate, acoustically isolated production studios, each with a different mix of digital synths, drum machines, computers, and software.

A partial list of digital equipment includes: Korg WaveStation A/D, Yamaha SY77, two Korg M1's, Proteus 1 and 2, Kurzweil K1000SE and many others from Roland, Kawai, and Ensoniq. We utilize a mix of Macintosh and Atari ST computers.

Our primary offerings are:
Passport Pro5, Passport Encore, Passport Producer.
When students have finished a piece of music, we have direct-to-Sony DAT recording, from which we can dub a regular analog cassette.

If you would like more information on our program, or would like to visit for a tour, just call. (206) 640-1648.
Sincerely, Keith A. Evans

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FAX: 771-3366

(Book Review; continued from page 4)

M. Mitchell Waldrop's book approaches the subject as the story of an idea. We become intimate with the idea through biographies of the researchers involved. This method may seem long-winded to the technician aching for details, but this makes "complexity" vivid to the lay-person. Artists have a fine-tuned sense of what is interesting, what is lifelike. Some Ylem members are already experimenting with one aspect of complexity, Artificial Life, where mechanical objects communicate with each other and utilize "flocking behavior." We await in zealous anticipation to see what else "complexity" means for the arts.

Review reprinted by kind permission from the author. Originally published in the *Ylem Newsletter* May 1993.

Ylem: Artists Using Science and Technology, is our sister group in San Francisco. For membership information, write: **Ylem, PO Box 749, Orinda, CA 94563** or email: **ylem@well.sf.ca.us**

I did it! I did it!

Thanks to everyone who came to see me at the Rendezvous last month. I must say that it was a learning experience of great importance. Thanks to all who gave me advice before the show, and to those who critiqued me afterwards. I learned how to avoid some future mistakes, but I also learned what worked and I will build on those points.

What *didn't* work:

OOPS #1. I had my Pad-8 on stage, and I had programmed a lot of sounds that I thought would be cool to play. Unfortunately, the sounds I made both blended in with the music, and were not percussive. They were great solo sounds (disturbing, really). The result was that I looked like I wasn't triggering anything at all. I know the sound was audible, but it just didn't grab you. OOPS.

OOPS #2. I had made a bunch of triggers with parts from Radio Shack and Value Village, which I thought would look cool as I hit them. They looked cool in my basement! Unfortunately they were too small. I'm sure the chuckle I was having was lost on the audience. OOPS.

OOPS #3. A lot of the music I have been doing in the last 8 years has been very private. I haven't considered what other people might think of it, so I do what sounds right to me. Unfortunately, I selfishly enjoy long, slow sections. I hadn't considered the poor listener in a live situation. Long sections work on tape where a person has an option to use the fast forward button, but live... OOPS.

OOPS #4. I allowed myself to become nervous. For some reason, after all this time in my basement, standing all alone in front of people as I played and sang made me feel self-conscious. It was like everyone was looking at me! <grin>. I hadn't prepared for that feeling. I forgot the words to two entire songs because of this. OOPS.

OOPS #5. Because I was really pretty sure that something like oops #4 would happen, I had put the lyrics to some songs on the floor by the set list. But I hadn't put them on the floor by the mike stand! I couldn't see them. OOPS.

What *did* work:

1) I played the Pad-8 with a puppet. It was fun, silly, and after I adjusted the sensitivity, effective.

2) I had made a home video. It was fun to do and gave the viewers something else to look at. I would like to go beyond that to include many simultaneous videos.

3) My triggers, despite their failings, worked. I mean, you hit them and a noise happens. Making INTERESTING triggers is now a prime focus for me.

4) My faster and more obnoxious songs seemed to go over better than the slow bits, so I will incorporate much more of them in future shows.

5) DAT backing tapes work! I knew that at any time during the show, if some unforeseen OOPS reared up and breathed in my face, the worst thing that would happen is the audience would just hear the backing tape.

See ya, and thanks!

Einar

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ADDRESS CORRECTION REQUESTED

FIRST CLASS MAIL

Managing Complexity

by Allan Tamm
CompuServe:[71712,1252]

Reprinted in full from The Northwest CyberArtist newsletter

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Furthermore, as the revolution continues and computing is redefined, yesterday's standards become obsolete and the promise of greater future capabilities begs the question, *"can we be satisfied tomorrow with what we have today?".* As a result, even if complexity is adequately addressed at an instant in time, it is an issue that won't go away.

The best technology offers greater control, ease of use and flexibility, and these are the things that we need more of, right? Well, maybe so, but not always. Control and flexibility are two of the most important faces of complexity. The "ease of use" can come at a cost of greater complexity which must be understood in order to successfully obtain the utility. So be prepared to understand more information and make more decisions, potentially in every phase of your endeavor, when you choose greater control and flexibility.

How does one decide where to draw the line on complexity? Since complexity isn't directly measurable, a subjective evaluation is called for. Trust your gut. No matter how you initially choose, you'll probably find yourself making adjustments anyway as you grow in experience. The most important thing, I believe, is to reach a solid understanding of what the *experience* is that you most want to have. You may not have a strong sense of this when you first start out. But given some time and experience, you will come to know that, and managing complexity will become much easier for you then.

Here are my top 10 suggestions for managing your complexity level:

1. Before you commit to a technology or product that is new to you, be sure you understand what using it will be like. Hands-on experience is the key, so arrange to get a walk-through of as many of the processes as you can. Sometimes just a little extra complexity in the wrong place can make a critical difference in whether or not a product is suited to your needs.

2. Think about how your creative processes will be changed by the presence of the technology you are considering. Be cautious about introducing complexity into the creative process, particularly if spontaneity is a requirement. Having to index a tape to be sure it is ready for recording is an example of how technology can defeat spontaneity. In general, the best situation is when all status information necessary to proceed with data input is visible to you without the need to query for it.

3. Consider purchasing a turn-key system. If you buy a machine complete with all the add-ons, you can capitalize on the experience of others in designing a good system. Multimedia PC's with sound, video and CD-ROM support installed at the factory are an example of this.

4. Don't overburden the technology you choose. A prime example is the personal computer. Of course, one of the reasons to use a personal computer is for its flexibility, and you want to leverage that. But if tasks are run simultaneously, they contend for system resources. Running too many tasks on a single machine can hurt system performance and also makes it harder to manage the machine's configuration.

5. Consider alternatives to leading-edge technology. If you ride the leading edge of technology, expect to spend extra effort handling some turbulence as the bugs are ironed out. New software in particular can be prone to hampering productivity. On the other hand, mature technology offers more stability and greater availability of support resources.

6. Before you commit to a specific product, be sure that you have allies. Try to assess how much help you are going to need based on your previous experience with the technology. If you don't have previous experience then allow extra time for building support relationships. Research the company to learn about its track record for product reliability and customer support. Try the customer support on some of your pre-purchase questions. Are they knowledgeable and courteous? Are they readily available and responsive either by fax, phone or electronic BBS? Find out if there is a community of users that you can converse with on an electronic BBS. The experience of your peers could prove very valuable when you have to deal with complex issues you are inexperienced in.

7. Be cautious about using computer technology to perform a task just because the technology allows you to perform it that way. In the beginning at least, use the computer only for the tasks you principally require it for. For example, just because you need to plan ahead and you happen to have this marvelous computer doesn't mean that you should race out and purchase some project management software. To do so before assimilating the details and nuances of performing your primary tasks could result in slowed progress in learning to do what you want to do best. All the tasks you perform with your computer require a piece of your mind's real estate, of which you have a finite capacity. Unless you are especially gifted, you will probably need to concentrate your mental efforts on the principle task or tasks you use the computer for until you are an expert on those.

8. Be careful about committing to activities revolving around the technology which don't directly relate to your goals, especially those activities through which you incur obligations. If your obligations become too great, life will be too complicated for you to have a hope of managing the technical complexities. A good example of this is attempting to do commercial business in order to be involved with the technology full-time or to pay for the equipment. Beta-testing software is another example.

Recently, I was a participant in a beta test program for an interesting software program that combines MIDI sequencing and music notation. I've done plenty of testing in the past, and it's still exciting to be offered the opportunity to make suggestions that may be incorporated into a new product. There are also intangibles such as personal recognition, and tangibles such as free software. But the beta didn't end as soon as I had anticipated, and eventually I realized that the software testing responsibilities I had accepted were taking up the only time I had available to play music. On top of that, I was already dealing with complex software issues during my full-time day job. In short, I had overbooked myself with complexity. So, despite the attractions, this clearly was not the experience that I needed at the time. It was a relief when I withdrew from the beta program and returned the software.

9. Become organized in ways that simplify your processes. Inconsistent practice (being disorganized) defeats the advantages of control. Your best shot at success is to develop simple processes which can be documented, learned and used repeatedly without distraction.

10. Have a game plan in case your technology should fail. This might mean that you have redundant systems. It might mean that you have a fallback technology that you can switch to if necessary. Or, if nothing else can be done, it might mean that you have a no-technology backup plan. This is essential if you are doing public appearances.

It's easy to see that if you aren't getting the results you want with a given technological approach, you should check it out to see where things stand. What's not so obvious is that you might want to check things out even when you *are* getting desirable results. Given a high level of complexity, it becomes easy to lose contact with one's original purpose as you accept the additional responsibilities of managing the complexity.

If you're clear about the experience you are looking for, you'll recognize when you go off track sooner and you'll be better able to reach decisions if they are called for. It just might be that you *can* manage the complexity, but doing so isn't what serves your needs best. Or maybe you'll find some piece of the technological puzzle which fascinates you endlessly, and you'll embark on a new career.

Once you make your technological choices, accept the results you get without considering them good or bad. Then you'll be ready to get the most out of your experience. If you take the plunge into new technology with an open mind, you'll not only learn something about the technology, you'll likely learn something about yourself that you didn't know before. And that's probably the best thing that could happen.

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