Y2K: WHAT EVERY CONSUMER SHOULD KNOW TO PREPARE FOR THE YEAR 2000 PROBLEM

JOINT HEARING

BEFORE THE

SUBCOMMITTEE ON TECHNOLOGY

OF THE

COMMITTEE ON SCIENCE

AND THE

SUBCOMMITTEE ON GOVERNMENT MANAGEMENT, INFORMATION, AND TECHNOLOGY

OF THE

COMMITTEE ON GOVERNMENT REFORM AND OVERSIGHT

U.S. HOUSE OF REPRESENTATIVES

ONE HUNDRED FIFTH CONGRESS

SECOND SESSION

SEPTEMBER 24, 1998

Committee on Science
[No. 86]

Committee on Government Reform and Oversight
Serial No. 105–185

Printed for the use of the Committee on Science and the Committee on Government Reform and Oversight

U.S. GOVERNMENT PRINTING OFFICE

51–986CC WASHINGTON : 1998

For sale by the U.S. Government Printing Office
Superintendent of Documents, Congressional Sales Office, Washington, DC 20402
ISBN 0-16-057989-9

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Y2K: WHAT EVERY CONSUMER SHOULD KNOW TO PREPARE FOR THE YEAR 2000 PROBLEM

THURSDAY, SEPTEMBER 24, 1998

HOUSE OF REPRESENTATIVES, COMMITTEE ON SCIENCE, SUBCOMMITTEE ON TECHNOLOGY, JOINT WITH THE COMMITTEE ON GOVERNMENT REFORM AND OVERSIGHT, SUBCOMMITTEE ON GOVERNMENT MANAGEMENT, INFORMATION, AND TECHNOLOGY

Washington, DC.

The Subcommittees met, pursuant to notice, at 2:07 p.m., in room 2318, Rayburn House Office Building, Hon. Constance A. Morella [Chairwoman of the Subcommittee on Technology] and Hon. Stephen Horn [Chairman of the Subcommittee on Government, Management, Information, and Technology] presiding.

Chairwoman MORELLA [presiding]. I'm going to call to order the Subcommittee on Technology of the Committee on Science. I wanted to, first of all—kind of out of order—introduce our colleague, Bob Clement, who is going to introduce his constituent, and then we'll continue with opening statements. So, Congressman Clement, it's a delight to have you here. You may come back any time you would like.

Mr. CLEMENT. Madam Chairwoman, thank you very much, and good to see you—also, my other friend over there, Mr. Horn. Mr. Horn and I, as you know, Madam Chairwoman, are both former college presidents, so when we see one another in the hallway, we always refer to one another as Mr. President.

I have the privilege of introducing Michael Hyatt. He's a friend, he's a constituent of mine, and he lives in the Nashville area.

I had an economic summit I might share with you, Madam Chairwoman, just this past few days—on Monday—and it was on the Y2K problem. We had over 500 people show up. That's how much interest. I want you to know people are really thinking about it—not only in the business community, but consumers as well. And Michael Hyatt, as well as Peter D'Jager, were my two keynote speakers.

Michael Hyatt is a best-selling author of a book I would suggest all of you read, and that's *The Millennium Bug: How to Survive the Coming Chaos.* Mr. Hyatt is a self-taught programming enthusiast, and fluent in Pascal and three dialects of BASIC. A publisher by trade, Mr. Hyatt is the Senior Vice President and Associate Publisher of Thomas Nelson Publishers.

He serves on his company's Year 2000 Task Force, where he has gained first-hand experience dealing with the complexities and challenges of the Y2K problem from a corporate perspective. Mr.

Hyatt has appeared on numerous television and radio programs, and he's surely been very much engaged, not only in the business and corporate world, but with consumers, and what they need to do, and how they need to prepare for the Year 2000.

And, Madam Chairwoman, I've always heard how much fun you all have on Science and Government Reform, so I wanted to at least be here with you momentarily. And I wish I could stay, but I'm Ranking Democrat on another Subcommittee that's meeting right now. But thank you for giving me this privilege.

Chairwoman MORELLA. Thank you for the excellent introduction of one of our panelists, and thank you for being here, and hope you will come back again.

So I want to welcome everyone to the latest hearing in a series of ongoing Year 2000 hearings held by the Technology Subcommittee and the Government Management, Information, and Technology Subcommittee, that is chaired by Congressman Horn.

Over the past two-and-a-half years, since we first began these hearings, we've focused on a wide spectrum of Year 2000 issues that potentially will affect every American, ranging from its impact on our Nation's energy supply, financial and banking sector, health care, manufacturing, information technology, small businesses, telecommunications, transportation, delivery of federal services and public benefits, and interaction with state and local governments, as well as internationally.

However, one issue particularly of interest to me, which we've not yet had an opportunity to focus on, is how Americans may be personally affected by this looming—or, I should say infected—maybe I could use that term—by this millennium bug in their homes. For the uninformed, the Y2K threat may conjure up images of the movie, Poltergeist, with appliances throughout the home going haywire, as we ring in the new century on January 1, 2000. Instead of ghosts causing all the commotion, it would be the result of the computer glitch.

If the Year 2000 problem has the potential to affect all date-sensitive products, what will happen to those little things around the house that have timers in them? Will the microwave work, or will the millennium bug zap it? How about camcorders and thermostats? Are personal computers Y2K ready? These are some of the questions that consumers are asking. I hope today we'll be providing them with some of the answers, and perhaps debunking some myths about certain products.

What we learn today will touch upon every one of us, because all of us have, or will be purchasing, machines in our homes that included embedded chips; and many of us have personal computers in our home. The Year 2000 problem places at risk certain computers and consumer products that use embedded chips, microprocessors that store or process data. As a result, in the typical American home, there are a number of consumer products that may be affected by the Year 2000 problem, ranging from personal computers to air conditioners, televisions, fax machines, and digital clocks, among many others.

Although a number of manufacturers have reviewed the effect of the Year 2000 on their products, and have taken measures if necessary to correct the problem with their products, it's also impor-

tant for every consumer to take the initiative to review the status of computers and products in his or her home.

Towards that end, we have developed a checklist for both the home and the marketplace to assist consumers in becoming Year 2000 ready. I want to thank the Business Software Alliance, the Consumer Electronic Manufacturers Association, and the Information Technology Association of America, for their invaluable assistance in preparing this checklist.

The checklist underscores the fact that the Year 2000 crisis may be so vast and far-reaching that each and every single one of us must assume some responsibility to be Year 2000 ready. While the world is feverishly scrambling to fix the Y2K problem, we as consumers must also take appropriate action. For example, consumers should be getting in the habit of asking about Year 2000 compliability and compliance before they purchase, and they should be taking measures to ensure that the products in their home continue to operate in the new millennium.

We're going to be hearing other suggestions for consumer action from our distinguished panel, and I look forward to reviewing these issues with them today. It is now my pleasure to recognize the co-Chair of the host Y2K Task Force, and the Chairman of the Government Reform and Oversight Subcommittee on Government Management, Information, and Technology, Mr. Horn.

Chairman HORN. Thank you very much, Madam Chairwoman. The Subcommittee on Government Management, Information, and Technology began hearings on the Year 2000 computer problem in early 1996. Working with the Committee on Science's Technology Subcommittee, chaired by Mrs. Morella, we've made considerable progress since that time.

We've established that the problem is real and substantial. We've raised awareness in the Federal Government, analyzed federal agency progress reports, and issued report cards on that progress. We've called on the President to designate the individuals and place responsibility several years ago. In February of this year, the President finally acted, and brought in Mr. John Koskinen, for whom we all have a high respect, as Assistant to the President, and by executive order, created a Presidential Council on the Y2K Conversion.

We also asked the President a couple of years ago, with Mrs. Morella and the Ranking Democrat, also signing—and I believe the Science Committee leadership also signed on some of those letters—and that is, Mr. President, use the bully pulpit and explain to the American people what is going on, so we don't have a panic.

I talked to him at the summer picnic on this and reminded him of one of his heroes, and one of many American's heroes, myself included—Franklin Roosevelt noted that, "We have nothing to fear but fear itself," in his first inaugural. And that's what the President needs to do in this area in working into other speeches what the Year 2000 is all about. Because very frankly, every poll I've seen shows most Americans don't know what you're talking about when you talk about Y2K. That's just nonsense. I mean, you're talking to the techies. You've got to explain this simply, and why it occurred, what we're going to do about, and that we are doing something about it.

Now, his idea of speaking out was at the National Academy of Sciences. That's fine; that was a very fine speech. He ought to utter that speech in cities all over America when he's making other speeches. It was a good speech, and it helped. But that's preaching to the choir. If there is any group in this town that does know something about it, it's the National Academy of Sciences.

Now great strides have been made in raising awareness and inspiring action. But still more has to be done by the Executive Branch. Almost every day, my office receives calls from private citizens trying to better understand this issue and to determine what they can do to prepare for the turn of the century.

The increasing interest from the American public was underscored at the numerous field hearings we held with the Government Management Subcommittee in six different cities in the country—New York, Dallas, New Orleans, Cleveland, Indianapolis, Chicago and its suburbs. And we learned a lot about the grass roots feeling of local governments, state government, people that operate the power grid, and other companies. And one of the good news was two very competitive companies are working together, and that's exactly what must happen in this.

The Y2K problem is not simply a federal or a local government problem; it's not only a private sector problem; it's not even a technology problem; it's a global management problem that will only be successfully resolved by effective management and the active involvement of citizens in nearly every country. We have a responsibility to ourselves to do as much as we can in the little time remaining.

We look forward to hearing from today's panel of experts on the actions consumers could take to prepare for the Year 2000. We've established that the problem is real and substantial, we've raised awareness in the Federal Government, analyzed their progress reports, we've issued report cards on that progress, we've called for the President to act, and we hope he will do more in the coming quarters.

Chairwoman MORELLA. Thank you, Chairman Horn. I'm now honored to recognize the Ranking Member of the Technology Subcommittee, Mr. Barcia.

Mr. BARCIA. Thank you, Madam Chairwoman. I want to offer my gratitude to both yourself and co-Chair Horn, and Task Force member, Mr. Kucinich, on the timeliness of this topic and the excellent panel that's been assembled. And I want to join my colleagues in welcoming everyone to this hearing.

Today's hearing is on a very important topic, consumer awareness of the Y2K problem. Most everyone in this room believes that the Y2K problem is real, serious, and needs to be addressed quickly. I think that most everyone would also agree that other than on government computer systems, we don't have a lot of information on how the Y2K problem will impact consumer goods and consumer services, such as telecommunications, health care, and utilities.

Among my constituents, there is a general awareness of the Y2K problem. However, most consumers seem at a loss as to what to do. In large part, this stems from a lack of specific information on how the Y2K problem could possibly impact them. Common information

generally varies between scenes of gloom and doom, and assurances that there will be no real impact.

As a result of this ambiguous information, most consumers are unsure of what specific actions to take and where to find the best information. From the Y2K hearings this Subcommittee has held, we have been given much anecdotal information, but few hard assessments. What I hope to learn today is first, what is the magnitude of the problem for consumers. If we don't know the answer, how do we know and go about getting it. And second, where can consumers find information that tells us what consumer products and services are Y2K compliant.

I realize that some companies have posted Websites with this information. However, many of my constituents don't have Internet access, and where would they go to get this important information. And further, if a consumer product is not Y2K compliant, how and where can it be repaired and who is responsible for fixing it if the product is affected? Another concern is how these products currently on the market that are not Y2K compliant? And finally, what is your assessment of the Y2K problem as it relates to computer interoperability and data exchange?

I believe that when we can provide consumers with real guidance and answers, then we can begin to improve public awareness. The August issue of *Consumer Reports* was one of the first articles that I have seen which provides consumers with some general advice regarding Y2K and financial services. In addition, the Federal Trade Commission has started to collect information on the impact of the Y2K problem on consumers, and they will soon be issuing their final report.

I'd also like to note that in their request for public comment on this issue, they received only 36 responses. If we're going to avoid the worst case scenario, either in terms of disruption in services or liability issues, I believe that industry must educate the public about the problem and the actions that they, as consumers, need to take.

I want to thank all of our witnesses today for sharing their valuable time with the Subcommittee, and what we might be able to do working together to mitigate some of this potential for financial loss, and anguish, and disruption in our economy. And I wanted to especially thank our witnesses for appearing today, and I look forward to hearing your comments.

Chairwoman MORELLA. Thank you, Mr. Barcia. Before we go to vote, I'd like to recognize Mr. Kucinich for his opening statement. He's the Ranking Member on the Subcommittee on Government Management, Information, and Technology. Mr. Kucinich.

Mr. KUCINICH. Thank you, Mrs. Morella, and Mr. Horn, for holding today's joint hearing on the implication of the Year 2000 computer problem for consumers. I appreciate having a chance to be here with Mr. Barcia, and with my other colleagues.

These two Committees have played critical roles in identifying Y2K problems and working to educate the public and the private sector to solve those problems. Our Committees have held numerous hearings on the impact of the Y2K problem on federal, state, and local governments, and on very key economic sectors.

But today's hearing will focus on another key issue, its impact on consumers. The Y2K problem is not just an abstract problem that affects government and big business. Ultimately, if Y2K problems are not solved, then individual consumers will pay the price. If governments do not solve their Y2K problems, then the individuals that rely upon them could face disruptions in critical services. If key economic sectors, such as banking, communications, or electric power industries fail, consumers could be faced with bank accounts that cannot be accessed, electric power outages, malfunctioning telephone systems, and other problems. These failures could cause disruption, economic losses, and in some cases, risks to health and safety.

In addition, American consumers currently own billions of dollars worth of products, from automobiles, to stereos, to digital watches, that contain so-called embedded chips, that in some cases may not be Y2K compatible. If these chips fail, then the products could shut down, suffer, reduce functions, or cease functioning entirely. This could result in severe inconvenience and economic losses.

Today's hearing reminds us of the consequences of the Y2K problem for consumers. Our Committees have held numerous hearings on other aspects of the problem, but this is the first hearing on this issue. As we approach the Year 2000, our Committees must continue to focus on these matters. Today's panel contains authors, publishers, and organizations that sell products to consumers. However, it does not contain any representatives from the numerous organizations that speak for and represent consumers. This indicates there is much work to be done.

Our oversight of this issue should continue. We must educate the public and hold manufacturers of consumer products accountable for adequately informing the public of Y2K problems, and solving them. If necessary, our Committees should explore legislation to protect consumers.

Once again, I want to thank Chairman Horn and Chairwoman Morella for holding these hearings, and for the first time, exploring the impacts of the Y2K problem on consumers. I look forward to continuing our bipartisan cooperation, as we continue to educate, inform, and protect the public from the unintended consequences of the Y2K problem.

Thank you very much, Madam Chairwoman. I'm going, with the number of members here, to leave to vote, if we may. Thank you.

Chairwoman MORELLA. Yes, indeed, and you'll be returning. Mr. Gordon, I think we might have a chance for your opening statement. Mr. Gordon was the Ranking Member of the Technology Subcommittee; he decided to go over to Space, and he's back.

Mr. GORDON. Thank you, Madam Chairwoman. We have to move forward. It seemed like last year and the year before, when we were talking about this and writing about this, that we were voices in the wilderness and no one would listen. I remember even contacting, personally, virtually every member of the Cabinet, and saying, this is important, you better get somebody that you trust on it. Just yesterday, I had a conversation with one of them that said, thanks for the warning, but we've got a long way to go.

This is an important issue, and I'm glad you're here. I particularly welcome my constituent, Michael Hyatt, who is the author of

a couple of important books on this subject. I'm glad you're with us, and hopefully, we're no longer voices in the wilderness. Let's hope there's enough time to act.

Chairwoman MORELLA. Thank you, Mr. Gordon. What are you doing, Mr. Hyatt, being represented by many Members of Congress? I think Mr. Gordon is your——

Mr. HYATT. Good representatives.

Chairwoman MORELLA [continuing]. —Congressman. We're going to recess for probably about 10 minutes, and get back.

[Brief Recess.]

Chairwoman MORELLA. We're going to reconvene our Technology Subcommittee and Government Management, Information, and Technology Subcommittee hearing. And so, I'm going to ask our witnesses if they would be kind enough to stand up and raise their right hands, so I can swear you in. This is the policy of the Science Committee.

Do you solemnly swear that the testimony you're about to give is the truth, the whole truth, and nothing but the truth?

Mr. HOLLEYMAN. I do.

Mr. SHAPIRO. I do.

Mr. BEACH. I do.

Ms. O'RILEY. I do.

Mr. HYATT. I do.

Chairwoman MORELLA. Okay, our first witness is Mr. Robert Holleyman. Mr. Holleyman is President and CEO of the Business Software Alliance, which represents both consumers and leading software developers before governments in the international market. Recently, he was recognized as the computer industry's 22-Watch, by the Computer Reseller News.

Our second witness, Mr. Gary Shapiro. Mr. Shapiro is the President of the Consumer Electronics Manufacturers Association, a trade association representing U.S. consumer electronics producers.

Our next witness is Mr. Gary Beach. Mr. Beach is the Publisher of CIO Magazine and the Chairman of the Center for Exhibition Industry Research. In May 1998, CIO Magazine published the first ever consumer awareness study concerning the Year 2000 problem. And we met at a Y2K conference in Chicago.

Our fourth witness, Mrs. Paloma O'Riley. Mrs. O'Riley is a co-Founder of the Cassandra Project, a nonprofit organization concerned with the public health and safety issues of the Year 2000 problem. She promotes community preparedness and grass roots participation.

And our final witness is Mr. Michael Hyatt, who is represented by two Members of Congress. Mr. Hyatt is the author of *The Millennium Bug: How to Survive the Coming Chaos,* which was recently on the *New York Times* business best sellers list. Today, he will present strategy for helping consumers deal with the impacts of the Year 2000 problem.

Thank you all for joining us. What I'd like to ask you to do, is to speak not more than about 5 minutes, and then we'll go through some questioning at about 5 minutes each. The totality of your testimony will be included in the record, as it is given. And so, we might commence now.

Mr. Kucinich mentioned something about consumers not being here. First of all, we are all consumers. Second, we did ask some consumer groups, that felt uneasy about coming at this particular meeting. And so we have some experts to help to guide consumers. And so we'll start off with you, Mr. Holleyman.

I do want to mention, too, a very distinguished member who has joined us, but didn't have an opening statement, Congressman Tom Davis, from neighboring Virginia.

TESTIMONY OF ROBERT HOLLEYMAN, PRESIDENT AND CHIEF EXECUTIVE OFFICER, THE BUSINESS SOFTWARE ALLIANCE (BSA)

Mr. HOLLEYMAN. Thank you very much, Chairwoman Morella, Chairman Horn, Mr. Davis. We appreciate your invitation to testify today, as well as the interest of your Subcommittees and Task Force on the critical issue of Year 2000 readiness.

The BSA represents leading publishers of software for personal computers in this country. We very much are concerned with the issues that this Committee is dealing with on the challenges our Nation and our society faces, as we move to the Year 2000.

Specifically today, I would like to address the issue of personal computers, and how they affect individuals, how they particularly affect consumers who are in their homes, or who have home-based businesses. This challenge for us is a broad one, but we believe firmly that in the area of personal computers that it is a challenge for which there are solutions, and the solutions come through working collectively and through cooperation among companies, and working with and informing consumers.

Today, I'd like to highlight two central points that the BSA believes are critical if our Nation is to adequately tackle the Year 2K challenge. First, all consumers must be proactive and they must ask questions, just as this hearing today encourages. And second, companies, all businesses, must be responsive and helpful to consumers as they work together to analyze their potential problem and to find solutions.

First question I would have is, what are the implications for consumers? Clearly we know that without taking action, the consumer who uses software in the home or office may face some difficulty with some of the software applications on their PC's. PC users, however, who have recently purchased their systems may well expect to face fewer problems with those compared to those with older systems.

Even so, most Year 2K issues confronting the PC user on January 1, 2000, will manifest themselves primarily as inconveniences. Few will cause real harm or damage to the consumer or his property. That is not to say, however, that the problems are not significant, or to say that there are not problems that need to be addressed by every consumer.

But potentially, the most troubling affects of the Year 2000 issue will arise from embedded systems, whose inability to process Year 2000 may lead to complications for the public at large. And I know that other panelists today, and others before your Committee, have and will surely examine these issues in their totality.

For average high tech consumers, however, inability to prepare one's taxes, to send e-mail, to use the Internet, would be real and not insignificant problems. Every computer user should ask questions. They need to determine what their computer usage is, what the likelihood of a problem with their software or hardware is, how that impacts them, and find solutions that are available through businesses.

Most software publishers and computer makers—and I'm indeed pleased to say that all of the BSA member companies, who represent the majority of productivity software sold in America—have provided information and are providing information all on their Websites regarding Year 2K readiness, but also through technical assistance that they're providing on their help lines, to mail materials, and printed materials and instructions that are being provided. These are the type of information that all consumers need as they make their own assessment.

What can a consumer do? Well, just as every business, just as government agencies, must analyze their computer systems to determine Y2K readiness, so too every consumer who uses a PC must ask that question about his or her computer.

Fortunately, one of the great benefits of the computer marketplace is that consumers have been free to choose to mix and match peripherals, the software, the operating systems, to come up with an unique system that works for their own needs. But that has also magnified the challenge of dealing with the Y2K issue, because there are few systems that are identical, and few systems for which there are identical solutions. So every consumer has to ask the questions about their system, its compliance, and they have to go to publishers and manufacturers who will provide this information.

I would also like to add—this is very important—that when consumers are checking their systems, that they also check to determine the compliance of their software with the U.S. copyright law, both to ensure that as a consumer they're not subject to any penalties, but importantly, because without a legal copy of software, the consumer is not entitled to free upgrades to the regular information that is otherwise available in many instances to legal users of software. So to get this information out to the broadest based, compliance with the U.S. copyright law is important.

And finally, I'll just note that we do believe that it is important that this Congress act to approve legislation that would facilitate even greater disclosure more broadly among U.S. businesses about potential Y2K liability issues. Because, this is a problem, but it is a problem for which there are solutions. And the solution is information.

Consumers need to ask the question; publishers of software, manufacturers of hardware, all businesses, need to provide the information; and we favor the disclosure liability legislation that this Congress is currently considering as a first step of fostering the dissemination of even more information.

And finally, I would simply like to note that as we move ahead in this area, as we move ahead to the new millennium, the Y2K issue has shown us that our futures—our future—as a country, the futures of our nations, are leading us to be much more technologically interdependent than ever before.

And so there is not a simple solution to this. But there is a solution for personal computers for every personal computer user, if they ask the right question, and when companies like ours and others provide information on Y2K readiness. It's a challenge for consumers, it's a challenge for governments to educate and ensure that government systems provide the full benefits, and it is a task that we're willing to meet in industry by providing information, by free software upgrades, by Internet access, by telephone access, by mail access. But information is the key.

Thank you very much.

[The prepared statement and attachments of Mr. Holleyman follow:]

Testimony of

ROBERT HOLLEYMAN, II
PRESIDENT AND CEO
BUSINESS SOFTWARE ALLIANCE

YEAR 2000: WHAT EVERY CONSUMER SHOULD KNOW

Before The

SCIENCE COMMITTEE'S SUBCOMMITTEE ON TECHNOLOGY, AND THE COMMITTEE ON GOVERNMENT REFORM AND OVERSIGHT 'S SUBCOMMITTEE ON GOVERNMENT MANAGEMENT, INFORMATION AND TECHNOLOGY UNITED STATES HOUSE OF REPRESENTATIVES

Washington, D.C.

SEPTEMBER 24, 1998

1150 18th Street N.W., Suite 700, Washington, D.C. 20036
TEL 202.872.5500 FAX 202.872.5501 INTERNET: software@bsa.org

Chairwoman Morella, Chairman Horn and Members of the Subcommittee:

My name is Robert Holleyman. I am the President and CEO of the Business Software Alliance (BSA) and I appreciate this opportunity to testify on behalf of America's leading software publishers regarding the potential effects on the American consumer arising from upcoming Year 2000 readiness issues. This panel and its leaders are to be highly commended for this and other hearings that help to focus the public's attention on this critical issue and what they can do to prepare for the coming millenium. Industry and the American public are indebted to the good work of Chairwoman Morella and Chairman Horn for generating and improving the level of discourse about our nation's ability to address the Y2K issue.

Since 1988, BSA has been the voice of the world's leading software developers before governments and with consumers in the international marketplace. Its members represent the fastest growing industry in the world. BSA educates computer users on software copyrights; advocates public policy that fosters innovation and expands trade opportunities; and fights software piracy. BSA worldwide members include Adobe, Autodesk, Bentley Systems, Lotus Development, Microsoft, Novell, Symantec and Visio. Additional members of the BSA's Policy Council include Apple Computer, Compaq, IBM, Intel, Intuit and Sybase.

Perhaps for the first time, the world faces a societal issue on which we can and should find agreement - preventing predictable and avoidable consequences that can benefit no one. If ever there was an issue that the American public faced together and side-by-side it is the upcoming transition into the new, global technologically based economy. The pending Y2K challenge poses serious questions and possibly serious consequences if left unaddressed.

However, consumers, companies and governments working together can effectively address these concerns -the challenge is large, but working collectively not insurmountable.

The surprisingly strong economic engine of high technology has served global society for the better. Communication has never been less fettered, information has never been more available, education has never been more promising. Innovation is thriving and the economy is robust. All of us benefit, directly and indirectly, from the current environment.

U.S. software publishers and computer makers are leading this economic surge. In 1996, the software industry alone directly and indirectly employed over two million people in the U.S. Employment in the industry is expected to grow at approximately 5.8 percent per year between the years 1996 and 2005, resulting in at least three million jobs. Compared to other manufacturing industries, software is the third largest value-added industry in the U.S. economy behind only motor vehicles & equipment and electronic components & accessories - growing at more than twice the rate of the national economy.

As this industry grows towards maturity, a process that is still necessarily underway, much information has been generated and shared. In the universities, in the government laboratories, in the textbooks, trade press and even on-line, innovation was furthered by the willingness of technology professionals to share ideas and information that allowed this information revolution to prosper. In the process, rules were created, standards were developed and conventions were followed. One such common convention was the use of the two-digit date field in the development of various software packages.

By definition, as a convention, the two-digit date field was adopted, shared, passed on and reused in much of the early software, firmware and hardware development, throughout the

world. Also, as a convention, the two-digit date field became self-perpetuating - its use was perpetuated precisely because it was an industry, and in fact, a government standard. When the development of consumer and business software arose later in the maturation process of the computer industry (even after the original, technical constraints that initially prompted the use of a two-digit date field had expired) interoperability needs often required its continuation.

In other words, because the world's developers had used the two-digit date field in the past, to accommodate early limits on memory space, the users of technology, within industry, government and home users routinely found themselves continuing the convention. Many will argue that someone should have foreseen a problem, and expressed their concern. In fact, several individuals did just that, and appropriately so. Their voices could not, however, change what had, by then, become a widely used convention.

The Year 2000 issue is fundamentally a collective policy matter, that can only be effectively addressed collectively - consumers, businesses and governments taking steps to become informed and to act on that knowledge. The Year 2000 issue is an issue to be solved by all of us for the benefit of all of us. Software publishers and computer manufacturers are doing their part - disclosing needed information and responding to consumers' Y2K concerns in a timely and full manner.

The Implication for Consumers

Without taking action, the consumer who uses software in the home or office may indeed face some difficulty with some of the software applications on their personal computers. PC users who have recently purchased their systems may expect to face fewer problems than those with older systems that have or haven't been upgraded. Even so, most Y2K issues confronting the

PC user on January 1, 2000, will manifest themselves as inconveniences. Few, if any, will cause real harm or damage to the consumer or his property. That is not to say, however, that the challenges are not real, or that they need not be addressed.

Potentially, the most troublesome effects of the Year 2000 issue, however, will arise from embedded systems whose inability to process the year 2000 may lead to complications for the public at large. These are the machines and systems that are dependent on microprocessors (chips) with built-in two-digit firmware. These machines are so pervasive in our lives that the average American is barely aware of how much impact their failure could have. The average user of technology at home or at the office may focus, too much perhaps, on telephones, faxes, copiers and, of course, desktop computers that might be adversely affected on January 1, 2000. But the loss of the electrical supply of our buildings, including fire control systems, heating ventilation, security and access systems pose a greater threat for serious problems. Even more troublesome, modern medical and life support devices are oftentimes chip-dependent, including pacemakers, electrocardiographs and electroencephalographs. The list of Y2K challenges facing our society will be long unless industries operating our nation's infrastructure take action. For example, communication, security and emergency services may be temporarily disabled - transportation may be disrupted and even water and sewage services may be suspended - all due to the failure of certain embedded systems, or the failure of connected systems to communicate. All of these effects will have a direct impact on the average American.

For the average high tech consumer, back at home in front of his or her PC, the inability to prepare one's taxes, send email or surf the net would be real and not insignificant problems. Y2K challenges that affect consumers' ability to use technologies at home must and can be

addressed. To do so, consumers must be proactive and companies must be responsive. Most software publishers and computer makers are - all BSA member companies, who represent the majority of the productivity software market, have tackled this issue head on. Without exception, each has Y2K websites and each takes seriously their responsibility to inform and assist their customers. Never before has the American public had such great access to information as they do now via the Internet - including access to Y2K information and solutions. However, for those consumers without online access, BSA member companies and most responsible providers of consumer goods and services provide help desk and technical support via telephone and printed material as well.

Taking Action: What Can the Consumer Do?

The user of software must take steps to become informed as to the Y2K readiness of their own systems. Just like the CEO of a large corporation or the head of a huge government agency, the individual consumer must take responsibility for finding out whether their computer systems are Y2K ready. Each computer system is unique - personal taste and budget, along with the freedom that consumers enjoy to mix and match operating systems with a plethora of various peripherals and software applications virtually assure that few systems are identical. The freedom to do this is held sacrosanct by consumers, and, it makes addressing the Y2K challenge that much more challenging. The individual user is in the best position to know and to address any issues that might arise from the non-compliance or date function incompatibility of operating systems or applications on their personal computer. Although the Y2K issue is real, the need for PC owners and users of software to learn more about their information technology systems is not all bad. As consumers, we have a responsibility to be informed.

The year 2000 issue is a system-level issue that requires appropriate handling at several levels. No one component of a user's system (either hardware or software) can guarantee that a system will operate correctly in the year 2000. For all computer systems one must check that both the operating system and applications software can correctly store, recognize and compute dates beyond 1999 including communicating dates with other software.

Just because hardware may be capable of handling dates beyond 1999 is not enough to ensure that a system is capable of handling 2000 and beyond. The impact of system software on the year 2000 rollover is critical. For date sensitive, critical applications, users must find out whether the software they are using will function correctly after 1999.

Fortunately for consumers, many commercial software publishers have created statements about whether their products were designed to recognize and handle dates beyond 1999. Consumers should contact the publishers of their software to find out this critical information. All BSA member companies have Y2K web sites that provide a description of the Y2K challenge, list their products that are Y2K compliant and discuss their strategy for addressing any Y2K issues pending with older product lines.

Each software publisher is in a unique position. Given the type of software it publishes, its dependence on date-related data, the accepted shelf life of the products, and dates of the first and last publication of these products, may or may not create a potential Y2K problem for its customers. Because these situations are unique among all publishers, each will address its own user base accordingly. Likewise, however, each software licensee must independently undertake to test their own systems and contact the developers or publishers of the software for which they hold a license in order to make their own system Year 2000 ready.

While checking and undertaking an inventory of their system's software applications, consumers should also check to see whether they hold a valid license to use the software. There are two good reasons to do this. First, using software without a valid license is breaking our nation's copyright laws. There are considerable fines and punishment for making and using illegal copies of software. Second, consumers who discover that they do not hold valid licenses may find themselves without the right to obtain information from technical service and support, as well as access to upgrades, fixes and patches. Consumers will need to test their suite of software products, whether it be for individual or business purposes, and to take affirmative and responsible steps towards solving the problem.

Ideally, software publishers should be able to provide information regarding Year 2000 readiness of a company's own products without risk of liability for such disclosures, and thereafter make available fixes, patches, or upgrades that allow the consumer to confirm that their own systems are Year 2000 ready. Indeed, this is what most software publishers have been trying to do over the course of the last several years. Unfortunately, some of those publishers who led the industry with full disclosure found themselves as targets for premature lawsuits. This result is contrary to the overall societal needs faced now by the country. In order to be responsive to the consumer need for information, the procedural legal environment must encourage companies to come forward and disclose all information needed by the user to ensure that his or her system is Y2K ready.

BSA supports congressional efforts to address the disclosure liability dilemma and certainly owes its appreciation to members of this panel who are sponsors and cosponsors of legislation to address this issue.

Additionally, because Americans with personal computers represent a minority of the US population, it would be inappropriate to allow these software functionality issues to overshadow our view of the more important Y2K questions facing our society at large. In point of fact, however, some law firms have attempted to do exactly that -- to make this small segment of the overall Year 2000 challenge a focal point for media attention and self-promotion. Not only does this direct the public's attention to a relatively insignificant aspect of the overall issue, such attention is in fact premature. For the overwhelming majority of individual, or even business, users of software, no damage has yet occurred. This was the very reason given by the Court for the recent dismissal of one of the class actions against a prominent consumer software developer. Rather than defending premature and speculative lawsuits based on hypothetical facts, software publishers and developers should be permitted to devote their resources to implement solutions that will obviate the potential problems.

BSA hopes that the Congress and the Administration will work together to address the procedural legal issue of meritless lawsuits burdening responsible companies with stifling legal fees before any harm or damage has actually been realized by anyone. Such a burden steals precious resources that should be put to work innovating new products and finding solutions to address our nation's Y2K challenges.

The new millennium brings with it an awareness of our technological interdependency. Consumers must be proactive and become informed, governments must educate its citizens and ensure that public works and services are readied, and just as importantly, industry must be responsive to consumers' questions and concerns.

Together the Y2K challenge is surmountable. BSA and its member companies stand ready to assist America's high technology consumers prepare for the new millenium.

Thank you for the opportunity to testify before your panel on this critical issue.

BSA Profile

Robert W. Holleyman, II
President & Chief Executive Officer
Business Software Alliance

Robert W. Holleyman is President and CEO of the Business Software Alliance (BSA) in Washington, DC. He is responsible for BSA's worldwide public policy, education, and enforcement campaigns. Holleyman is an experienced speaker and witness before numerous industry organizations, and federal and state governments. Holleyman was designated by Computer Reseller News as one of its "Twenty to Watch" in the computer software industry.

Prior to joining BSA in 1990, Holleyman spent eight years on Capitol Hill as Senior Counsel for the U.S. Senate Committee on Commerce, Science, and Transportation (1987-1990); and Legislative Director and Assistant to former U.S. Senator Russell B. Long (1982-1986). He also was an attorney with Margraves, Kennerly & Schueler in Houston, Texas and judicial clerk for U.S. District Judge Jack M. Gordon, New Orleans, Louisiana.

Holleyman earned his Bachelor of Arts degree in political science at Trinity University in San Antonio, Texas, and his Juris Doctor at Louisiana State University Law Center in Baton Rouge, Louisiana.

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TRUTH-IN-TESTIMONY DISCLOSURE

Part I: Witness Identification

1. Name: Robert Holleyman	2. Address: 1150 18th Street, NW Suite 700 Washington, DC 20036
3. Phone Number: (202) 872-5500	

Part II: Group Identification

4. Please identify the group(s) or organization(s) on whose behalf you are testifying. If you are not testifying on behalf of any group or organization, please indicate "none." Business Software Alliance		
5. Are you testifying on behalf of a governmental organization, meaning a federal department or agency, or a state or local department, agency, or jurisdiction? (If "yes," skip to item 7.)	YES	NO X

Part III: Federal Grants and Contracts

6a. Have you, or any of the organizations or groups which you may be representing, received any federal grants or contracts (including subgrants or subcontracts) that are relevant to the subject of the hearing during the current fiscal year or any of the two (2) preceding fiscal years?	YES	NO X

6b. If you checked "yes" for Item 6a above, please list the source and amount for each grant, contract, subgrant, or subcontract, received within that period. Please attach additional sheets if necessary.

Source	Amount

Part IV: Signature

7. Please sign and date indicating that to the best of your knowledge the information provided on this form is both true and accurate.

Signature: Robert Holleyman	Date: September 23, 1998

Revised 3/26/98

Chairwoman MORELLA. Thank you, Mr. Holleyman. I now recognize Mr. Shapiro. And we've been joined by the Vice Chair of the Technology Subcommittee, Mr. Gil Gutknecht.

TESTIMONY OF GARY SHAPIRO, PRESIDENT, CONSUMER ELECTRONICS MANUFACTURERS ASSOCIATION

Mr. SHAPIRO. Thank you, Madam Chairwoman, Chairman Horn, Congressman Gutknecht, and I am pleased to say under oath that I have only one Congressman—I'm very proud of him—Congressman Davis.

The Consumer Electronics Manufacturers Association is a trade association. We represent the manufacturers of consumer electronics products—some 450 of them. We're part of a larger group, called the Electronic Industries Alliance, which represents all electronics manufacturers.

Our members have some 790 manufacturing facilities around the country. Our members have sold about over 1 billion products into American homes that are in use today. It's about a $76 billion business, and it's fairly healthy.

I have good news for you. Although my colleague, Robert Holleyman, of the Business Software Alliance has talked about some Y2K issues associated with computers, when it comes to traditional consumer electronics products, the good news is that based on information we've received from several of our members, most of our products do not suffer any kind of Y2K problem.

We surveyed our members in May in preparation for a filing with the Federal Trade Commission (FTC), where the FTC asked for information about these issues. And the truth is, most products, first of all, don't even have a date function on them. If you think of loudspeakers, if you think of accessories, even TV sets, very rarely do you ever see a year that comes up on a TV set. And even in those products where there is a date function, there's not likely to be a problem. And when there is a problem, it's simple to fix, just the way today we reset our products just about twice a year for daylight savings time.

There are a number of products which do use dates, and there's a few areas where we've identified where there could be issues. I'd like to highlight three products—personal computers, VCR's, and camcorders.

Personal computers, as Mr. Holleyman indicated, may face some problems, especially for older models. But the truth is that older models are really not in use very much. Just about two-thirds, or slightly under two-thirds, of computers bought today, are replacement computers. That means, you're taking a new computer and you're putting your old one either as a secondary computer, or you're just boxing it up, or throwing it out. The inventory of PC's turns around just about every 5 years. So virtually all machines that are in use today in American homes were purchased from 1993 or forward.

In terms of VCR's—now the primary use for VCR is to play prerecorded tapes, prerecorded movies. But of course, they're also used to a certain degree—we estimate about 25 percent—for recording. Now there are two types of recording that go on with the VCR—that is you're recording simultaneously with the pro-

grammed broadcast or sent over cable—simultaneous recording—or your time-shifting—your shifting the time you view the program. You're essentially setting your machine to record some time in the future. This is—in terms of setting your machine—if you want to set a machine for after the Year 2000, sometime late in December 1999—you may face a problem with some very, very old VCR's. That is, VCR's sold before 1987. So it would have to be about 13 years old.

Now of the 143 million VCR's now in use, virtually all were purchased after 1988, and our research shows that VCR's rarely last more than 10 years, and that 95 percent of the VCR's bought today are replacement units.

In terms of the problem you'd have with the VCR, it would still work for two of three functions. It would work with playing prerecorded tapes, it would work for simultaneous recording, but it may not work if it's a certain type of model—if it's a pre-1987 model, and for future recording.

Camcorders have a similar problem, perhaps less critical to the playability of the product. Some older camcorders, sold before 1988—this is 12 year old camcorders—may not provide a correct year when recording for the consumer who wants to use the feature of having the date on theirs.

Those of you who watch America's Funniest Videos—and certainly nobody in this room does that—but if you see it, you'll notice that about one out of four, one out of three, people use the date stamp on the video when they're using it.

But the truth is, of about 33 million camcorders that are in use today, almost all were bought after 1988, so we expect this to affect only a very small number of camcorders.

So if you take the over 1 billion products that are in American homes, we estimate that there may be some impact for some very old products. But based on the information from our members, it will be a relatively small impact.

In terms of how a consumer can know whether they have a Y2K problem, the best way, as Mr. Holleyman indicated, is to contact the manufacturer, to try to get information. We have a Website at CEMA, where we are talking about the Y2K problem, and directly linking to our members' Websites that have Y2K information. Certainly this brochure that we've worked on together is an excellent step. And we're also open to any other suggestions you may have as to how we can educate the public.

I would just like to take a moment to say that it would very helpful to industry and to consumers if Congress would move relatively quickly with legislation to provide some limited liability protection, encouraging manufacturers to say everything that they know, so they can disclose what they do know.

In surveying our members, we've gotten various responses—some of them extraordinarily forthcoming and some of them relatively silent. But we have yet to identify any major problems from anyone. But we think everyone would be a little more comfortable if there weren't all these lawyers hovering around, ready to file lawsuits.

So the bottom line is the outlook is very good for consumers in terms of their use of consumer electronics products, and most products will work, and will not experience Y2K problems that can't be easily fixed by just simply resetting the product.

Thank you for this time.

[The prepared statement and attachments of Mr. Shapiro follow:]

COMMENTS OF THE CONSUMER ELECTRONICS MANUFACTURERS ASSOCIATION (CEMA)

BEFORE THE SCIENCE COMMITTEE SUBCOMMITTEE ON TECHNOLOGY AND THE GOVERNMENT REFORM AND OVERSIGHT COMMITTEE SUBCOMMITTEE ON GOVERNMENT MANAGEMENT, INFORMATION AND TECHNOLOGY

September 24, 1998
GARY SHAPIRO, PRESIDENT

Introduction

The Consumer Electronics Manufacturers Association (CEMA) is a sector of the Electronic Industries Alliance (EIA), the 74-year-old Arlington, Virginia based trade organization representing all facets of electronics manufacturing. CEMA represents U.S. manufacturers of audio, video, mobile electronics, communication, information and multimedia products and accessories which are sold through consumer channels. The 450 CEMA members, ranging from large corporations to small businesses, have over 700 manufacturing facilities throughout the United States.

The U.S. consumer electronics industry is a vital, growing, integral part of the U.S. economy. It is projected to grow to $75.6 billion in total factory sales in 1998, a five percent increase over 1997.

Consumer Electronics and the Year 2000

I'm happy to say that I've got good news for American consumers. I understand my friend, Robert Holleyman of the Business Software Alliance will be addressing the Year 2000

(Y2K) issues associated with computers and their use, so I will focus my comments today primarily on consumer electronics (CE) products.

The good news is that based on information we have received from several of our members most CE products do not suffer any kind of Y2K problem. CEMA surveyed its members in preparation for drafting comments for the Federal Trade Commission's recent inquiry into Y2K consumer issues. According to feedback from several CEMA members, for the few CE products which are affected by Y2K, proper working of the date/time function is in many cases ancillary to the proper functioning of the product. Simple steps can be taken by the consumers themselves to quickly address Y2K issues.

Consumer electronics products that use dates are VCRs, TV/VCR combination products, camcorders, fax machines, personal computers and home automation and security products. Calendar data is used in such products to enable advance programmability, date/time stamping, and calendar management functions. According to feedback from CEMA members, however, most of these products do not use or need the date to function. For example, a TV may display the date briefly in the bottom of the screen when you turn it on, but it doesn't need that date to continue displaying clear beautiful television pictures. Only a few products, including a limited number of older models of video and personal computer products, are likely to be affected in any way by the date change in the year 2000. The impact is not expected to be significant because simple manual resetting or the addition of software upgrades can provide a remedy in most cases.

In those few cases we have identified where manual resetting will not resolve a consumer electronics product, we do not anticipate much impact on consumers.

For example, very old personal computers may face some problems. But consumer computers, bought in the 1980s are barely in use today. The PC business is running at a 60-65

percent replacement/ additional rate versus 35-40 percent first time and the inventory of PCs is use turns over about every five years. There are about 55 million PCs in use in the US today. Virtually all the machines in use today were purchased from 1993 forward.

As you know, VCRs are used primarily for playing prerecorded tapes, but they are also used for time shifting. Some older VCRs, bought before 1987, may experience problems recording future events after the year 1999. Of the 143 million VCRs now in use, virtually all were purchased after 1988. VCRs rarely last more than ten years and roughly 95 percent of VCRs sold today are sold as replacement units.

Similarly after 1999, some older camcorders sold before 1988 may not provide a correct year when recording for the consumer wishing to use this feature. Of the 33 million camcorders in use today, virtually all were bought after 1988 so we expect this to only affect a small number of camcorders. As this is simply a minor feature on a camcorder older than ten years, we don't anticipate a significant consumer problem.

Furthermore, consumers should keep in mind that while some manufacturers do not market their products as being Y2K compliant, this does not mean that their products are not Y2K compliant. As I just mentioned, many CE products don't have Y2K problems, thus some manufacturers have not considered it necessary to explicitly inform consumers that they won't be experiencing any Y2K compliance issues with their products. Of course, it is important for consumers to know if and when they might be experiencing such difficulties.

Consumer Options

How can a consumer know whether he or she has a potential Y2K problem exists? Contacting the manufacturer is the most direct route to getting Y2K information on CE products.

Many consumer electronics manufacturers are disseminating information about the Y2K status of their products. Several manufacturers have created Internet sites which provide extensive information about the Y2K compliance of their products, and some invite e-mail from consumers with particular Y2K concerns. Other methods by which manufacturers communicate on the Y2K issue include reaching customers by mail; providing information through technical support centers; and sending information to dealers to encourage and support their efforts in communicating to customers.

Some manufacturers of computer products have created Internet sites as a source of helpful information regarding Y2K issues for personal computers. These sites usually provide general information about the Y2K issue, the Y2K-ready status of the manufacturer's products, and links to other sources of information that can help consumers determine what action they may need to take. In many cases, customers may also download helpful software free of charge.

CEMA has also provided a web page accessible to the general public which links directly to CEMA members with Y2K information on their products.

Let me take just a moment to state that it would be beneficial for consumers and manufacturers alike if Congress were to move forward expeditiously with passage of legislation to provide limited liability protection for companies making Y2K disclosures and claims such as the "Year 2000 Information and Readiness Disclosure Act." Passage of the legislation would encourage release of even more information about products and their Y2K status so that consumers can know what, if any, steps must be taken to ameliorate the potential Y2K impact in their lives.

Conclusion

It's true that consumers shouldn't assume that absolutely none of their CE products will be affected by Y2K. Indeed, there may be problems about which we have not been informed or of which our industry is not aware. Consumers can and should arm themselves with information.

Still, the outlook is very good: essentially all consumer electronics products currently being sold, and a vast majority of consumer electronics products sold in the past, will not experience Y2K problems. Even so, CE companies and CEMA are taking steps to get the word out about CE products and any potential Y2K issues.

Gary Shapiro
President
Consumer Electronics Manufacturers Association

Gary Shapiro is president of the Consumer Electronics Manufacturers Association (CEMA), the trade association representing over 450 U.S. consumer electronics manufacturers.

Mr. Shapiro began his career with the association in 1982 as its government and legal advisor. In 1983, he was promoted to staff vice president. Two years later, he was appointed assistant general counsel and then promoted to vice president in 1988. In 1989, Shapiro was promoted to vice president, secretary and general counsel of EIA, the parent to CEMA. In 1990, he shifted back to the consumer electronics area as group vice president and in October 1995 became president of CEMA.

Mr. Shapiro has been an active leader in the development and launch of HDTV. He co-founded and serves as chairman of the HDTV Model Station and has served on the Board and Executive Committee of the Advanced Television Test Center (ATTC).

Mr. Shapiro is well known in the exposition and meetings world for CEMA's CES® and for his leadership on industry issues. He is past chairman of the Board of Trustees of the International Association for Exposition Management (IAEM) Foundation and past chairman of IAEM's Industry and Government Affairs Committee. He also serves as chairman for the Center for Exhibition Industry Research.

Mr. Shapiro has lead the manufacturers' battle to preserve the legality of recording equipment and the consumer battle to protect video rental rights and the right to record. As Chairman of the Home Recording Rights Coalition, Mr. Shapiro has helped ensure the growth of the video rental market, VCRs and home computers.

Mr. Shapiro has testified before Congress some 20 times and has appeared on over 30 television shows, including *The Today Show*, *CBS Evening News*, *Night Watch* and *CNN*.

Mr. Shapiro has been a frequent speaker at conventions, published numerous articles on legal, lobbying and electronics issues and was the 1996 recipient of the Philip Rothman Humanitarian Award. Mr. Shapiro has also been recognized by the U.S. Environmental Protection Agency as a "mastermind" for his initiative in helping to create the Industry Cooperative for Ozone Layer Protection (ICOLP), founded to create industry cooperation in eliminating ozone-depleting solvents.

Prior to joining EIA, Mr. Shapiro was an associate at the law firm of Squire, Sanders and Dempsey. He has also worked on Capitol Hill.

Mr. Shapiro received his law degree from Georgetown University Law Center and is a Phi Beta Kappa graduate in Economics and Psychology from the State University of New York, Binghamton.

He resides with his wife, Janice, and their two sons in Vienna, Virginia.

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September 23, 1998

Rep. Constance Morella
Chairwoman
House Science Committee, Subcommittee
on Technology
2319 Rayburn Building
U.S. House of Representatives
Washington, DC 20515

Dear Chairwoman Morella:

Thank you for inviting me to testify before the Science Committee's Subcommittee on Technology and the Government Reform and Oversight Committee's Subcommittee on Government Management, Information and Technology during your upcoming hearing discussing the subject of "Year 2000: What Every Consumer Should Know."

As President of the Consumer Electronics Manufacturers Association (CEMA), the major trade association for the U.S. consumer electronics industry, I will be pleased to represent the industry before your task force on Thursday, September 24.

Pursuant to House Rules, I hereby state that - to the best of my knowledge - CEMA is not a recipient of any federal grants nor engaged in any federal contracts.

I look forward to seeing you tomorrow, and working with you on this and other issues of concern.

Sincerely,

Gary J. Shapiro
President

Chairwoman MORELLA. I thank you, also, for Consumer Electronics Manufacturers Association involvement, and also Business Software Alliance—the kind of partnership, and with ITAA—really, I think, has been a good major step.

I'm pleased now to recognized Mr. Beach.

TESTIMONY OF GARY J. BEACH, PUBLISHER, CIO MAGAZINE

Mr. BEACH. Madam Chairwoman, Congressman Horn, I realize right now, Gary, I have a Year 2000 problem. I get laughed at all the time at software games with my camcorder, my VCR—it's about that old.

CIO magazine, the facts I'll read today, might seem a little bit mundane in terms of all the facts, but it represents the only group that matters here, and that's the consumers. We did a survey in May of this year—643 random digi-dial households across America. The average age of the respondent was 44, evenly split in terms of gender, average household income was $55,000, and 60 percent were computer literate.

What we wanted to find out was a level of awareness of the Y2K problem across America, how consumers became aware of that problem, what the number one concern for consumers was, how the problem would affect them personally, who should monitor report on the progress of the solutions, look at areas that should be addressed and solved first regarding Year 2000, and then lastly, the activities consumers would and would not participate in come January 1, 2000.

In addition, I'll be providing insight on how chief information officers, the constituent that reads our magazine—these are men and women who are responsible for large business information technology infrastructures—how they feel about Year 2000 versus the consumers, and that insight I call, the reality gap.

So, the Y2K awareness and level of concern. More often than not, study respondents became aware of Year 2000 through radio—48 percent, print publications—29 percent, and/or work—20 percent. 50 percent expressed concern about the Year 2000 problem affecting them personally. Their top concerns are computers will crash and their personal records will be lost. They'll have financial, credit, banking problems, and the government will shut down, and they'll have problems with Social Security and the IRS.

When we asked the people who were aware of the problem, who I should have mentioned earlier, 62 percent of the sample when we asked were aware, 38 percent of the sample were not. That's an important number. Of those aware, 80 percent said they seemed confident that the Year 2000 problem will be solved by January 1, 2000. In my opinion, this silver bullet theory does not hold water.

In government issues, the report shows that people are concerned about the Year 2000 problem on the government level. When asked to rate the seriousness of the problem, as they were concerned about, they responded in order: dealing with the IRS, Social Security, and Medicare as the most serious; followed by national security.

The largest portion of respondents, 34 percent, said that government should monitor the progress report, and private businesses came in second at 23 percent.

Like your Committee, Congressman Horn, when asked to rate the Administration's efforts to address Year 2000 on a scale of "A" to "F," the average respondent gave the Administration a "C."

We saw indications that the Year 2000 may have an impact on the general election come November, Year 2000. We did a hypothetical question, asking if the Vice President would have a vulnerability because of his position on information and technology, and 55 percent said if there were significant problems with the Year 2000 problem, that would be a concern to them.

Respondents were then asked to read a list of what areas should be addressed first. Earlier I mentioned personal concerns. They put those aside and said here are the areas that our country should address first, and that was national defense—41 percent. Banking and finance, 26 percent; health care, 20 percent, and so on down the list. It's in the report.

The role of manufacturers, as far as who is to blame for the Year 2000 problem, the consumers are spreading it across the board. Twenty-two percent blame the technology industry in general. Nineteen percent blame software programmers. Twelve percent blame the government, and 5 percent put the blame on private business.

However, consumers place considerable responsibility on individual manufacturers to address or fix the Year 2000 problem. Seventy-eight percent indicate that if they have a product that malfunctions at the turn of the century, they would insist the manufacturer take responsibility and fix or replace the product. Forty-six percent say they would consider a lawsuit against the product manufacturer if they were injured as a result of the product malfunction. Eight in ten said they'd be more likely to do business with companies who said they would be Year 2000 compliant.

Banking and finance issues: 32 percent of the consumers said they were likely to close a bank account before the turn of the century. Importantly, we've raised a hypothetical question saying, "If it's the summer of 1999 and the problem is not solved, what will you do with your money?" Forty-nine point eight percent said, "I don't know." That underscores a tremendous need for a national campaign to make this issue even more aware. Sixteen percent said they would put their money in one bank or investment vehicle that is Year 2000 compliant. And the issue that hit me the most when I saw the results of this survey, 1 in 4, 25 percent, or projected to 15 million households claimed they would take their money out of banks and put it under a mattress. These were open-end responses.

Home PC's. The majority, as Mr. Holleyman said, 61 percent consider themselves computer literate, and that the PC industry will be fine. Thirty-two percent are somewhat concerned while 58 percent are not at all concerned. Thirty-one percent, however, did mention they would wait until the beginning of the next century to buy a new computer. I pose that as a thought in terms of what impact could that action have in the fall of 1999 on the purchase of PC's, software, computer retail stores across America.

Consumers, lastly, versus information technology executives. Interestingly, consumers do not share the same point of view as CIO's. A study by CIO's found a disconnect between what the consumers are telling us. Only 17 percent of CIO's are confident that

the Year 2000 problem will be fixed. Recall, 80 percent of the consumers were saying the problem will be fixed by the Year 2000.

Lastly, one stat that jumped out at me on the results of the survey was we asked these households, "If asked, would you volunteer your services to help solve the problem?" Remember 60 percent were computer literate. Forty-five percent of the respondents said, "Yes, I would help in some way." I see an opportunity to possibly start a digital civilian conservation corps. People are waiting to be asked. Even if that number is wrong by a factor of 10, that's still 4 percent of heads of households who would be willing to help. We cannot ignore that.

Thank you.

[The prepared statement and attachments of Mr. Beach follow:]

CIO

Y2K Consumer Awareness Study

May, 1998

Commissioned By:

CIO Communications, Inc.
492 Old Connecticut Path
Framingham, MA 01701

Contact: Bridget Cammarata
Research Director
508-935-4035

Conducted By:

IDG Research Services Group
492 Old Connecticut Path
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PURPOSE & METHODOLOGY

PURPOSE

CIO Communications commissioned the CIO Year 2000 Consumer Study to determine consumer awareness and concerns regarding the Year 2000 problem. More specifically, this study was designed to ascertain the following:

- Level of awareness of the Year 2000 problem
- How consumers became aware of the Year 2000 problem
- Number one concern about the Year 2000 problem
- How the Year 2000 problem will affect consumers personally
- Who should monitor and report on progress of Year 2000 solutions
- Areas that should be addressed and solved first and last regarding the Year 2000
- Activities consumers would and would not participate in on January 1, 2000

METHODOLOGY

The sample for this study was selected on an 'nth' name basis from a representative sample of random digit dial numbers from the 48 contiguous U.S. states using known exchanges and area codes.

A total of 643 individuals were contacted. Thirty-eight percent (243) were not aware of the Year 2000 problem and 62% (400) were. The findings that follow are based on interviews with the 400 individuals who were aware of the Year 2000 problem. Telephone interviews were completed between May 13, 1998 and May 18, 1998 by First Market Research of Austin, Texas. In order to complete the interview respondents had to be 18 years of age or older and had to have heard a great deal, a fair amount, or only a little about the Year 2000 problem.

IDG Research Services Group was responsible for coding, keypunch, and tabulation/analysis of the data. A copy of the questionnaire used in this study is included in the appendix to the report.

A Note About Projectability

The margin of error for a base of 400 respondents is plus or minus 2.2% to 5.0% at the 95% confidence level. The chances are 95 in 100 that a census of the entire population from which the sample was selected would yield results within 2.2 to 5.0 percentage points of those shown in this study.

A Note About Source Information

Any data used from this study must be sourced " CIO Communications, Inc., May 1998."

Executive Summary

Awareness & Level of Concern

Of the 643 individuals contacted, 38% are not aware of the Year 2000 problem, while 62% are aware of the Year 2000 problem. The results of this study are based on the 62% (or 400 respondents) who have seen, heard or read a great deal, a fair amount, or only a little about the problem. Most often, respondents became aware of the Year 2000 problem through TV/radio (48%), print publications (29%) or work (20%).

One-half of the study sample express concern about the Year 2000 problem affecting them personally. The top concerns mentioned are:

- Computers will crash/records will be lost
- Financial/credit/banking problems
- Government will shut down/problems with Social Security/IRS

Those respondents who are not concerned about the Year 2000 problem affecting them personally most often feel that the problem will be fixed or already has been fixed, they don't own a computer/don't deal with computers much, or they feel that the problem won't affect them personally.

Overall, respondents seem fairly confident that the Year 2000 problem will be fixed before January 1, 2000. In fact, 80% are confident that the problem will be fixed.

Government Issues

The report shows that respondents are concerned about the Year 2000 problem on the government level. When asked to rate the seriousness of the Year 2000 problem to them as an individual in regard to various issues respondents rate 'Dealing with the IRS, Social Security, Medicare, etc.' the most serious, followed by 'National security to you as an individual'.

The largest portion of respondents (34%) state that the government should be the one to monitor and report on progress solving the Year

2000 problem (private business registers second at 23%). To date, the average respondent gives the Clinton administration a 'C' when asked to grade its efforts to address the Year 2000 problem on a scale of A, B, C, D, or F. Furthermore, 55% of the respondents feel that as the Clinton administration's 'Technology guy', Vice President Al Gore's presidential aspirations will be jeopardized if Year 2000 software glitches cause crashes all around us.

Respondents were read a list of areas and asked to give their opinion on which should be addressed first and last regarding the Year 2000 problem. National defense again registers as a top concern.

	Addressed First	Addressed Last
National defense	**41%**	**7%**
Banking and finance	26%	10%
Healthcare	20%	4%
Utilities	4%	31%
Transportation	3%	33%

EXECUTIVE SUMMARY (CONTINUED)

THE ROLE OF MANUFACTURERS

As far as who is to blame for creating the year 2000 problem, 22% blame the technology industry in general, 19% blame software programmers, 12% blame the government and 5% put the blame on private business.

Respondents place considerable responsibility on individual manufacturers to address or fix the Year 2000 problem. More than three-quarters of the study sample (78%) indicate that if they have a product that malfunctions at the turn of the century, they would insist that the manufacturer take responsibility and fix or replace the product. Forty-six percent of the respondents mention they would look into a lawsuit against the product manufacturer if they were injured as a result of a product malfunction at the turn of the century.

Notably, eight out of ten respondents (80%) say they would be more likely to do business with or buy products or services from a company who is or will be Year 2000 compliant.

FINANCE/BANKING ISSUES

Thirty-two percent of the study sample indicate that they would be likely to close a bank account before the turn of the century. If it comes apparent in mid-1999 that companies will not solve the Year 2000 problem by January 1, 2000, over half of the respondents will relocate their money:

- One out of four (25%) will take their money out of the bank and put it under their mattress
- 16% will put all their money in one bank or investment vehicle that is Year 2000 compliant
- 11% will deposit their money in several different banks or investment vehicles to

minimize the chance of encountering any Year 2000 problems

Twenty-two percent of the individuals responding state they would likely wait until after the turn of the century to invest in a mutual fund.

HOME PCS

The majority of respondents (61%) consider themselves computer literate, and 54% have a computer at home. When asked how concerned they are about their home PCs being able to handle the Year 2000 problem, 8% say they are very concerned and 32% are somewhat concerned, while 58% are not at all concerned.

Thirty-one percent, however, mention they would be likely to wait until after the turn of the century to buy a new computer.

DEMOGRAPHIC INFORMATION

The study sample consists of an even split between male (50%) and female (50%). The average age of respondents is 44, and, on average, respondents' total annual household income is $55,600.

THE FINDINGS

Amount Heard About the Year 2000 Problem

Question 1: How much, if anything, have you heard about the Year 2000 problem?

	Percent of Total Answering
Great deal	31.8%
Fair amount	30.0%
Only a little	38.3%
Total Answering	400

How Respondents Heard About the Year 2000 Problem

Question 2: Please tell me how you became aware of the Year 2000 problem.

	Percent of Total Answering
TV/Radio	47.8%
Print publications such as newspapers or magazines	29.3%
At work	20.3%
From friends/family	14.3%
I work in the technology industry	10.3%
Online	2.3%
School	1.5%
Received a letter	0.3%
Other	3.5%
Don't know	0.3%
Total Answering	400

Level of Concern About Personal Affects of the Year 2000 Problem

Question 3: How concerned are you about the Year 2000 problem affecting you personally?

	Percent of Total Answering
Concerned (Net)	50.3%
Very concerned	12.3%
Somewhat concerned	38.0%
Not at all concerned	49.8%
Total Answering	400

Top Concerns Regarding the Year 2000 Problem

Question 4a: What is you number one concern about the Year 2000 problem?

	Percent of Total Answering
Computers will crash/all records will be lost	38.3%
Financial/credit/banking problems	29.9%
Government will shut-down/ problems with Social Security/IRS	8.0%
Problems with transportation/utilities	4.0%
The economy/recession/unemployment	3.5%
Will affect well-being/endanger livelihood	3.0%
Concern for family/future generations	2.5%
Problem will not be fixed in time	2.0%
Government is dragging its feet/ not resolving the problem	1.5%
Medical records/healthcare	1.0%
Other	3.5%
Don't know/haven't thought about it	5.0%
No specific opinion	1.5%
Total Answering	201*

* Among those respondents who are concerned about the Year 2000 problem affecting them personally.

Reasons Why Respondents Are Not Concerned About the Year 2000 Problem

Question 4b: Why aren't you concerned about the Year 2000 problem?

	Percent of Total Answering
The problem will be fixed/has already been fixed	43.2%
Don't own a computer/don't deal with computers much	14.1%
The problem won't affect me personally	12.1%
I just don't worry/don't think about it/ nothing I can do	12.1%
I'm too old to care	7.5%
I don't believe there is a problem/media hype	5.0%
It is up to other people to fix it	1.5%
Other	2.5%
Don't know	3.5%
Total Answering	199*

* Among those respondents who are not concerned about the Year 2000 problem affecting them personally.

LEVEL OF CONFIDENCE THAT THE YEAR 2000 PROBLEM WILL BE FIXED

Question 5: How confident are you that the Year 2000 problem will be fixed before January 1, 2000?

	Percent of Total Answering
Confident (Net)	79.8%
Extremely confident	11.3%
Very confident	31.5%
Somewhat confident	37.0%
Not confident	14.0%
Don't know enough	6.3%
Total Answering	400

VARIOUS ISSUES: SERIOUSNESS OF THE YEAR 2000 PROBLEM

Question 6: On a scale from 1 to 10, where 10 means most serious and 1 means least serious, how serious do you expect the Year 2000 problem will be for you as an individual in regard to…?

	Most Serious (% rating 8-10)	Least Serious (% rating 1)	Mean Scores
Dealing with the IRS, Social Security, Medicare, etc.	37.5%	20.8%	5.6
National security to you as an individual	26.8%	22.3%	5.0
Your savings or checking accounts	24.0%	22.3%	4.8
Your doctor, hospital and medical records	21.0%	23.3%	4.6
Brokerage accounts such as stocks, bonds, mutual funds	20.3%	33.8%	4.2
Passports, driver licenses, auto registration, voter registration, etc.	19.8%	24.0%	4.6
Your utilities such as water, gas, electricity, oil, etc.	19.0%	25.0%	4.4
Education records, grades, transcripts	18.3%	30.5%	4.1
Insurance policies	17.5%	28.5%	4.2
Home computers, TV's, VCR's or security systems	17.5%	29.5%	4.2

Total Answering: 400

Possible Financial Changes if the Year 2000 Problem is not Solved

Question 7: What changes, if any, do you plan to make with your finances if it becomes apparent in mid-1999 that companies will not solve this problem by January 1, 2000?

	Percent of Total Answering
Take your money out of the bank or other investment vehicles and put it under your mattress/hide it in your house	25.3%
Put all your money in one bank or investment vehicle that claims to have solved the Year 2000 problem	15.5%
Deposit your money in several different banks or investment vehicles to minimize the chance I will encounter any Year 2000 problems	10.5%
Don't know	48.8%
No answer	0.5%
Total Answering	400

WHO SHOULD MONITOR/REPORT ON PROGRESS SOLVING THE YEAR 2000 PROBLEM

Question 8: Who should monitor and report on progress solving the Year 2000 problem - the government, private business a non-profit standards organization, the media or someone else?

	Percent of Total Answering
The government	33.8%
Private business	22.8%
A non-profit standards organization	16.0%
The media	8.5%
Individuals should monitor their own problems	1.3%
Computer/software companies	1.3%
Combination of government and private business	0.5%
Someone else	1.5%
All of the above/everyone	4.3%
Don't know	10.3%
Total Answering	400

Who is To Blame for Creating the Year 2000 Problem

Question 9: In your opinion, who is to blame for creating the Year 2000 problem?

	Percent of Total Answering
The technology industry in general	21.5%
Software programmers	18.5%
The government	12.3%
Everyone	6.0%
Private business	4.8%
Management/business who delayed in fixing the problem	1.8%
Media	1.0%
Other	3.0%
No one	24.5%
Don't know	16.5%
Total Answering	400

LIKELY ACTIONS REGARDING YEAR 2000 ISSUES

Question 10: Next I am going to read you a list of actions that may become issues as the Year 2000 approaches. As I read each, please tell me if you would be likely to act before the new year, would you be likely to wait until after the turn of the century, or would it make no difference to you?

	Before	After	No Difference	Don't Know
Taking out a loan or mortgage		15.8%	14.0%	66.0%4.3%
Buying a new computer	10.5%	30.8%	54.8%	4.0%
Buying a new automobile	15.0%	13.8%	67.8%	3.5%
Investing in a mutual fund	14.0%	22.0%	58.3%	5.8%
Buying gold	12.0%	11.0%	70.8%	6.3%
Closing a bank account	32.0%	12.8%	51.5%	3.8%
Buying insurance	16.0%	14.3%	66.3%	3.5%
Changing jobs	9.0%	10.8%	76.5%	3.8%
Retiring	6.8%	22.5%	65.5%	5.3%
Getting a passport	11.3%	15.3%	71.0%	2.5%
Having elective surgery	11.0%	14.3%	70.5%	4.3%
Taking a trip abroad	14.3%	15.0%	67.0%	3.8%

Total Answering: 400

Whether Respondents Would Be More Likely to Buy Products From A Year 2000 Compliant Company

Question 11: Would you be more likely to do business with or buy products or services from a company who is or will be Year 2000 compliant?

	Percent of Total Answering
Yes	80.0%
No	8.8%
Don't know	11.3%
Total Answering	400

WHETHER MANUFACTURERS SHOULD FIX/REPLACE PRODUCTS THAT MALFUNCTION AT THE TURN OF THE CENTURY

Question 12: If you have a product that malfunctions at the turn of the century, would you insist that the manufacturer take responsibility and fix or replace the product?

	Percent of Total Answering
Yes	77.8%
No	10.8%
Don't know	11.5%
Total Answering	400

Whether Respondents Would Look into a Lawsuit if Injured as a Result of a Product Malfunction at the Turn of the Century

Question 13: If you get injured as a result of a product malfunction at the turn of the century, would you look into a lawsuit against the product manufacturer?

	Percent of Total Answering
Yes	46.0%
No	33.8%
Don't know	20.3%
Total Answering	400

Whether Respondents Would Take Certain Actions on January 1, 2000

Question 14: On January 1, 2000, would you…?

	Yes	No	Don't know/ No answer
Fly on a commercial airline	52.5%	38.5%	9.0%
Have major surgery	55.5%	37.0%	7.5%
Ride an elevator to the top of a high building	58.5%	35.5%	6.0%
Have faith in the country's defense system	68.8%	19.3%	12.0%

Total Answering: 400

How Respondents Would Grade the Clinton Administration on its Efforts to Address the Year 2000 Problem

Question 15: How would you grade the Clinton administration in its efforts to address the Year 2000 problem? Would you give the Clinton administration an A, B, C, D or F?

	Percent of Total Answering
A (5)	7.8%
B (4)	21.5%
C (3)	30.8%
D (2)	8.0%
F (1)	14.0%
Don't know	18.0%
Mean	3.0
Total Answering	400

Whether Al Gore's Presidential Aspirations will be Jeopardized if Year 2000 Glitches Cause Crashes

Question 16: As the Clinton administration's 'Technology guy', will Vice President Al Gore's presidential aspirations be jeopardized if Year 2000 software glitches cause crashes all around us?

	Percent of Total Answering
Yes	55.3%
No	29.0%
Don't know	15.8%
Total Answering	400

YEAR 2000 ISSUES TO BE ADDRESSED FIRST & LAST

Question 17a: Which of the following areas, in your opinion, should be addressed and solved first regarding the Year 2000?

Question 17b: And, which of the these areas, in your opinion, should be addressed and solved last regarding the Year 2000?

	First	Last
National defense	40.8%	6.5%
Banking and finance	26.3%	10.0%
Healthcare	20.3%	3.8%
Utilities	4.0%	31.3%
Transportation	2.8%	33.3%
Some other area	0.3%	2.8%
Don't know	5.8%	12.5%
Total Answering	400	400

Whether Respondents Would Volunteer Their Time to Help Fix the Year 2000 Problem

Question 18: Part of the solution to fix the problem computers may have with the Year 2000 requires a person to re-key dates and search for dates on computer systems. Would you volunteer your personal time to help fix the Year 2000 problem?

	Percent of Total Answering
Yes	45.0%
No	44.5%
Don't know	10.5%
Total Answering	400

Whether Respondents Consider Themselves Computer Literate

Question 19: Do you consider yourself computer literate?

	Percent of Total Answering
Yes	60.8%
No	39.3%
Total Answering	400

Whether Respondents Have a Personal Computer at Home

Question 20: Do you have a personal computer at home?

	Percent of Total Answering
Yes	54.0%
No	46.0%
Total Answering	400

Level of Concern Regarding Home PCs

Question 21: How concerned are you about your home PC being able to handle the Year 2000?

	Percent of Total Answering
Concerned (Net)	40.2%
Very concerned	8.3%
Somewhat concerned	31.9%
Not at all concerned	58.3%
No answer	1.4%
Total Answering	216*

* Among those respondents with a PC at home.

Whether Respondents Work for a Technology Company/in an IS Function

Question 22: Do you work for a technology company or in an IS function at any company?

	Percent of Total Answering
Yes	19.0%
No	80.8%
No answer	0.3%
Total Answering	400

AGE OF RESPONDENTS

Question 23: What is your age?

	Percent of Total Answering
18 - 24	10.5%
25 - 29	7.5%
30 - 34	14.0%
35 - 39	8.8%
40 - 44	11.8%
45 - 49	8.8%
50 - 54	10.5%
55 - 64	10.8%
65 or older	16.5%
Refused	1.0%
Mean (years)	44
Total Answering	400

TOTAL ANNUAL HOUSEHOLD INCOME

Question 24. Which one of the following categories best describes your household's total annual income?

	Percent of Total Answering
Less than $25,000	13.0%
$25,000 - $49,999	27.8%
$50,000 - $74,999	16.0%
$75,000 - $99,999	7.5%
$100,000 - $149,999	3.8%
$150,000 - $199,999	1.3%
$200,000 or more	1.3%
Refused	29.5%
Mean (thousands)	$55.6
Total Answering	400

APPENDIX

QUESTIONNAIRE

Y2K Man on the Street Poll
FINAL - 5/13/98
n=500

Hello, my name is _____ and I am calling from First Market Research in Austin, Texas. We are conducting a brief study among people 18 and older about the Year 2000 and I'd like to get your opinions on a few issues.

INTERVIEWERS: MAKE SURE ADULT IS 18 YEARS OF AGE OR OLDER. WATCH QUOTA (50% MALE, 50% FEMALE)

1 MALE
2 FEMALE

1. To begin with, how much, if anything, have you heard about the Year 2000 problem? To clarify the Year 2000 problem, many computer systems, now set up to read years by their last two digits, will lose track of dates as the year 1999 turns to 2000. Would you say that you have seen, heard or read a great deal, a fair amount, only a little or have you not heard anything about the Year 2000 problem? (CHECK ONE ONLY)

1 Great deal
2 Fair amount
3 Only a little
4 Nothing at all → INELIGIBLE; THANK AND TERMINATE

2. Please tell me how you became aware of the Year 2000 problem. (DO NOT READ LIST, PROMPT IF NECESSARY; CHECK ALL THAT APPLY)

1 TV/Radio
2 Print publications such as newspapers or magazines
3 Online
4 At work
5 From friends/family
6 I work in the technology industry
7 Received a letter
8 Other (please specify) _____

_____

(FEED IN THOSE THAT WORK FOR A TECHNOLOGY COMPANY OR WORK IN AN IS FUNCTION AT ANY COMPANY)

3. How concerned are you about the Year 2000 problem affecting you personally? Are you very concerned, somewhat concerned, or not at all concerned? (CHECK ONE ONLY)

1 Very concerned → CONTINUE TO QUESTION 4a
2 Somewhat concerned
3 Not at all concerned → SKIP TO QUESTION 4b

4a. What is your number one concern about the Year 2000 problem? (WRITE IN RESPONSE BELOW; PROBE FOR COMPLETE ANSWERS; WRITE NEATLY)

_____

_____

_____

SKIP ALL RESPONDENTS FROM QUESTION 4a TO QUESTION 5

4b. Why aren't you concerned about the Year 2000 problem? (WRITE IN RESPONSE BELOW; PROBE FOR COMPLETE ANSWERS; WRITE NEATLY)

_____

_____

_____

5. How confident are you that the Year 2000 problem will be fixed before January 1, 2000? Are you...(READ EACH; CHECK ONE ONLY)?

1 Extremely confident
2 Very confident
3 Somewhat confident or
4 Not confident
5 Don't know enough **(DO NOT READ)**

6. On a scale from 1 to 10, where 10 means most serious and 1 means least serious, how serious do you expect the Year 2000 problem will be for you as an individual in regard to (READ EACH, ROTATE ORDER; WRITE IN RATING BELOW)...? [DK=X]

Your savings or checking accounts _____

Your doctor, hospital and medical records _____

Brokerage accounts such as stocks, bonds, mutual funds _____

Insurance policies _____

Dealing with the IRS, Social Security, Medicare, etc. _____

Home computers, TV's, VCR's or security systems _____

Education records, grades, transcripts _____

Passports, driver licenses, auto registration, voter registration, etc. _____

National security to you as an individual _____

Your utilities such as water, gas, electricity, oil, etc. _____

7. What changes, if any, do you plan to make with your finances if it becomes apparent in mid-1999 that companies will not solve this problem by January 1, 2000? (DO NOT READ, PROMPT IF NECESSARY; CHECK ALL THAT APPLY)

1 Put all your money in one bank, or investment vehicle that claims to have solved their Year 2000 problem

2 Deposit your money in several different banks or investment vehicles to minimize the chance I will encounter any Year 2000 problems

3 Take your money out of the bank or other investment vehicles and put it under your mattress/hide it in your house

4 Don't know

8. Who should monitor and report on progress solving the Year 2000 problem - the government, private business, a non-profit standards organization, the media or someone else? (CHECK ONE ONLY)

1 The government
2 Private business

3 A non-profit standards organization
4 The media
5 Someone else (specify)_____
6 Don't know

9. In your opinion, who is to blame for creating the Year 2000 problem? (DO NOT READ, PROMPT IF NECESSARY; CHECK ALL THAT APPLY)

1 The government
2 Private business (nontechnology)
3 Software programmers
4 The technology industry in general
5 No one
6 Everyone
7 Other (specify)_____
8 Don't know

10. Next I am going to read you a list of actions that may become issues as the Year 2000 approaches. As I read each, please tell me if you would you be likely to act before the new year, if you would be likely to wait until after the turn of the century, or would it make no difference to you? (ROTATE LIST)

	Before	After	No Difference	Don't Know
Taking out a loan or mortgage	1	2	3	x
Buying a new computer	1	2	3	x
Buying a new automobile	1	2	3	x
Investing in a mutual fund	1	2	3	x
Buying gold	1	2	3	x
Closing a bank account	1	2	3	x
Buying insurance	1	2	3	x
Changing jobs	1	2	3	x
Retiring	1	2	3	x
Getting a passport	1	2	3	x
Having elective surgery	1	2	3	x
Taking a trip abroad	1	2	3	x

11. Would you be more likely to do business with or buy products or services from a company who is or will be Year 2000 compliant?

1 Yes
2 No
3 Don't know

12. If you have a product that malfunctions at the turn of the century, would you insist that the manufacturer take responsibility and fix or replace the product?

1 Yes
2 No
3 Don't know at this time

13. If you get injured as a result of a product malfunction at the turn of the century, would you look into a lawsuit against the product manufacturer?

1 Yes
2 No
3 Don't know at this time

14. On January 1, 2000, would you: (READ EACH)

Fly on a commercial airline?	1 Yes	2 No	3 DK
Have major surgery?	1 Yes	2 No	3 DK
Ride an elevator to the top of a high building?	1 Yes	2 No	3 DK
Have faith in our country's defense system?	1 Yes	2 No	3 DK

15. How would you grade the Clinton administration in its effort to address the Year 2000 problem? Would you give the Clinton administration an A, B, C, D, or F? (CHECK ONE ONLY)

1 A
2 B
3 C
4 D
5 F
6 Don't know

16. As the Clinton administration's 'technology guy', will Vice President Al Gore's presidential aspirations be jeopardized if Year 2000 software glitches cause crashes all around us?

1 Yes
2 No
3 Don't know

17a. Which of the following areas, in your opinion, should be addressed and solved first regarding the Year 2000? (READ EACH, CHECK ONLY ONE)

17b. And, which of these areas, in your opinion, should be addressed and solved last regarding the Year 2000? (READ EACH NOT MENTIONED IN 17a, CHECK ONLY ONE)

	17a. First	17b. Last
Transportation	1	1

National defense	2	2
Banking and finance	3	3
Healthcare	4	4
Utilities	5	5
or some other area (specify) _____	6	6
DO NOT READ		
Don't know	7	7

18. Part of the solution to fix the problem computers may have with the Year 2000 requires a person to re-key dates and search for dates on computer systems. Would you volunteer your personal time to help fix the Year 2000 problem?

1 Yes
2 No
3 Don't know at this time

19. Do you consider yourself computer literate?

1 Yes
2 No

20. Do you have a personal computer at home?

1 Yes
2 No ——————→ SKIP TO QUESTION 22

21. How concerned are you about your home PC being able to handle the Year 2000? Are you very concerned, somewhat concerned or not at all concerned? (CHECK ONE ONLY)

1 Very concerned
2 Somewhat concerned
3 Not at all concerned

22. Do you work for a technology company or in an IS function at any company?

1 Yes
2 No

23. What is your age? (DO NOT READ; CHECK ONE ONLY)

1 18 - 24
2 25 - 29
3 30 - 34
4 35 - 39
5 40 - 44
6 45 - 49

7 50 - 54
8 55 - 64
9 65 or older
0 Refused

24. Which one of the following categories best describes your household's total annual income? (READ EACH; CHECK ONE ONLY)

1 Less than $25,000
2 $25,000 - $49,999
3 $50,000 - $74,999
4 $75,000 - $99,999
5 $100,000 - $149,999
6 $150,000 - $199,999
7 $200,000 or more

DO NOT READ:
8 Refused

INTERVIEWER READ: That is all of the questions I have. Thank you very much for your time!

Interviewer Signature _____ Date _____

Sampling Variance

SAMPLING VARIANCE AT THE 95% CONFIDENCE INTERVAL

Sample Value (Percent)

Size of Sample = Base for %	5% or 95%	10% or 90%	15% or 85%	20% or 80%	25% or 75%	30% or 70%	35% or 65%	40% or 60%	45% or 55%	50%
100	4.4	6.0	7.1	8.0	8.7	9.2	9.5	9.8	9.9	10.0
200	3.1	4.2	5.1	5.7	6.1	6.5	6.7	6.9	7.0	7.1
300	2.5	3.5	4.1	4.6	5.0	5.3	5.5	5.7	5.7	5.8
400	2.2	3.0	3.6	4.0	4.3	4.6	4.8	4.9	5.0	5.0
500	1.9	2.7	3.2	3.6	3.9	4.1	4.3	4.4	4.4	4.5
600	1.8	2.4	2.9	3.3	3.5	3.7	3.7	4.0	4.1	4.1
800	1.5	2.1	2.5	2.8	3.1	3.2	3.4	3.5	3.5	3.5
1000	1.4	1.9	2.3	2.5	2.7	2.9	3.0	3.1	3.1	3.2
1100	1.3	1.8	2.2	2.4	2.6	2.8	2.9	3.0	3.0	3.0
2000	1.0	1.3	1.6	1.8	1.9	2.0	2.1	2.2	2.2	2.2
2200	0.9	1.2	1.5	1.7	1.8	1.9	2.2	2.0	2.1	2.1

Note: This table indicates the interval that will contain the actual population value with a 95% level of confidence.

The confidence of 95% means that 95 percent of all samples of the selected size drawn from the population will produce intervals (plus and minus) which contain the actual population value, while 5 percent of the samples will not.

For example, if 65% of a sample of 300 respondents give a particular answer to a question, one can assume that for 95% of all samples of 300 drawn from the population, the actual population value would fall within 5.5 percentage points of 65% (the sample value), or between 59.5% and 70.5%. For 5% of the samples of 300 drawn from the population, the actual population value will not be contained in the interval, 59.5% and 70.5%

CIO COMMUNICATIONS, INC.

Where Technology Gets Down to Business

Gary Beach
Publisher
***CIO* Magazine**

CIO MAGAZINE

CIO.COM

EXECUTIVE PROGRAMS

PARTNERSHIP PROGRAMS

An industry veteran, Gary Beach brings over ten years of information technology (IT) publishing experience and knowledge to his role as publisher of *CIO* magazine. Beach's primary responsibility at *CIO* is to create new business opportunities for IDG's fastest growing publication and its related products. He plans to further educate the IT community on the importance of reaching chief information officers and other management executives with IT vision.

Beach is widely recognized for his role in founding the U.S. Tech Corps, a national nonprofit organization dedicated to improving education through technology. He recently traveled with President Bill Clinton to Brazil for the dedication of a new Tech Corps chapter in Rio de Janeiro. Beach also serves on the U.S. Department of Commerce's National IT Workforce Committee. As a member of this team, Beach investigated the perceived image of IT professionals and reported findings to President Bill Clinton in January 1998.

A prolific public speaker, Beach is a coveted spokesman throughout the United States. His recent appearances include testifying before the U.S. Senate Special Committee on the Year 2000 Technology Problem as well as keynote addresses for the Chicago Software Association and the United Nations on behalf of the Association of Information Technology (AIT). Beach is an overseer at the Computer Museum in Boston and serves on the Board of Directors for both Gifts in Kind and NetDay. The second of the two is a nonprofit organization dedicated to helping schools acquire the tools to make meaningful educational use of technology.

During his tenure with IDG, Beach has also served as CEO of IDG's *Computerworld* and *Network World* magazines. Prior to joining IDG, he held several executive positions at McGraw-Hill.

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CIO COMMUNICATIONS, INC.

Where Technology Gets Down to Business

CIO MAGAZINE

CIO.COM

EXECUTIVE PROGRAMS

PARTNERSHIP PROGRAMS

September 22, 1998

Chairwoman Constance A. Morella
Subcommittee on Technology
U.S. House of Representatives
Washington DC 20515

Dear Chairwoman Morella;

This letter serves as confirmation that CIO Communications, Inc. (publisher of CIO Magazine) has not received any Federal grants, contracts or monies during the current and the two preceding fiscal years.

Sincerely,

Walter Manninen

Walter Manninen
Vice President of Finance

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An IDG Company

Chairwoman MORELLA. Fascinating, really very provocative. Well, we'll get to you, certainly in the questioning.

Ms. O'Riley?

TESTIMONY OF PALOMA O'RILEY, CO-FOUNDER, CASSANDRA PROJECT

Ms. O'RILEY. Thank you, Chairwoman Morella.

Chairwoman MORELLA. Do you mind handling this with all those guys around you?

[Laughter.]

That's why we passed in the House the other day the Women in Science, Engineering, and Technology bill so that we could get more women and minorities involved. Thank you, Ms. O'Riley.

Ms. O'RILEY. Thank you. Very few people with hands on acquaintance with the Year 2000 problem will state that all the problems will be found and fixed in time. And those who do speak on the Y2K issues couch the uncertainties and unknowns in reassuring terms, terms that are confusing and misleading the public.

An example of such a statement, as we've often heard, are mission critical systems will be ready. Other statements, such as how a particular agency will be compliant, deliberately or otherwise, ignores the scope, and complexity, and interconnectedness of all systems.

Compliance in the face of the degree of our dependence on critical infrastructure is an illusion. With immense gratitude and admiration for the work Congressman Horn has done, I must respectfully submit that the grading of individual agencies is only a small portion of the reporting that must be done. We must recognize and admit that we are only as compliant as the weakest link in the chain.

While compliance may be practically unattainable, contingency planning is not. Government, business, and the public can develop back-up plans in the event we experience failures or severe disruptions in any part of critical services. Unfortunately, many businesses and critical services are not engaged in contingency planning. And it must be made the number one task on the list performed concurrently with remediation.

As for the public, they must be given enough advance information to form their own contingency plans. Waiting to tell the public is not an option. It puts us all at an extreme disadvantage if suddenly confronted with Y2K problems. The bottom line here is we will experience failures and/or interruptions in critical services due to Y2K. What we don't know is exactly where, how serious, or for what duration.

In the face of so many unknowns, the only reasonable and responsible course of action for the Administration is to inform the public. Explain in plain words what the nature of the Year 2000 problem is, the complexity, the likely impacts and implications, and above all what they can do.

And there is much the public can and is doing. Thousands of people across the United States and Canada are now taking steps to prepare for potential worse case Y2K scenarios. They are not panicking. They are making reasoned and appropriate decisions as how they may best take precautions. By evaluating their personal de-

pendence and critical infrastructure, they are developing contingency plans for themselves and their families. By talking to their neighbors, they are learning who among them may be particularly vulnerable and unable to prepare, and together they are attempting to create a safety net for them if needed.

These people are not survivalists, paramilitary, or religious fanatics. They are doctors, teachers, bankers, and ministers. They understand that some events are beyond the scope of any organization, such as FEMA or the Red Cross, to respond; and that Y2K problems will occur worldwide with global domino effects. These people are willing to accept that they may need to be self-reliant for a short period of time.

But by being silent or equivocal, the Administration is hampering these essential grassroots efforts. Too many individuals and groups have already fallen by the wayside in recent months due to the vehement denial of the reality of the Y2K problem, reinforced by the lack of authoritative corroboration. Those attempting to remediate the problems are subject to derision, hostile denial, and little or no support. A climate of acceptance of the existence of Y2K problems, backed with a willingness to discuss the broader ramifications is necessary if remediation and preparedness efforts on all fronts are to succeed. Silence, soft-peddling, ambiguity, and hiding from the problems must end this day. Information given to the public will not cause a panic, but the continued lack of solid factual information of rumors and misstatements and a clear lack of leadership will.

In addition to providing such leadership, the government must take steps to protect the public from direct, indirect, or delayed consequences of the Y2K problem. There has been much discussion as to limiting liability for business and government, but no discussion as to limiting liability for the consumer.

To this end, we offer the attached draft legislation titled, "Y2K Citizens Protection Act," which we hope to introduce to the Colorado State Legislature this coming spring. This Act would shield consumers from the negative or harmful impacts of the Y2K problems that are beyond their control.

Now, just as we've done in World War II, the public can and should be called upon to physically and psychologically prepare for any Year 2000 challenges. The American Government can serve as a model to the world of what can and needs to be done to weather this global challenge. The American people have risen to great challenges in the past, and can do so again if we but had the leadership to inform, guide, and support our efforts.

To close, I'd like to offer the following quote as a call to action. It was said by Winston Churchill during a debate on the national defense posture in 1936: "Owing to pass neglect in the face of plainest warnings, we have now entered upon a period of danger. The era of procrastination, of half measures, of delays is coming to a close. In its place, we are entering a period of consequences. We cannot avoid this period, we are in it now. Unless this House resolves to find out the truth for itself, it will have committed an act of abdication of duty without parallel."

Thank you.

[The prepared statement and attachments of Ms. O'Riley follow:]

24 September 1998

Testimony of Mrs. Paloma O'Riley, Co-founder and Research Director, The Cassandra Project

Before the -
Subcommittee on Science and Technology
Subcommittee on Government Management, Information and Technology

Very few if any people with hands-on acquaintance with the year 2000 dilemma will state that all the problems will be found and fixed, and in time. Those that do know couch the uncertainties and unknowns in reassuring terms; terms that are confusing and misleading the public. An example of such a statement is the often heard "...our 'mission critical' systems will be ready". Other statements such as how a particular agency "will be compliant" minimizes the problem and ignores --deliberately or otherwise -- the interconnectedness of all systems.

"Compliance", in the face of the level of our dependence on critical infrastructure, is an illusion. It's like kicking the tires of a car and declaring that the vehicle is in working order. With immense admiration and gratitude for the work Congressman Horn has done, I must respectfully submit that the time for the grading of individual agencies has passed. Such a practice, while an excellent indicator of how work is progressing within, does not indicate whether a successfully remediated agency will be able to function come 2000.

For example, if agency A depends on B, and B has not eliminated all problems -- then it does not matter whether agency A was successful in its remediation efforts. If A and B *have* successfully remediated, but the electricity goes out, the telephones go down, or the post office (for example) cannot deliver, than what was accomplished? We must recognize and admit that we are *only* as 'compliant' as the weakest link in the chain.

Compliance may be practically unattainable, but contingency planning is not. Government, business and the public can develop backup plans in the event we experience failure or severe disruption at any point in the system or infrastructure. Unfortunately, many businesses, and state and government agencies are not engaged in contingency planning. Contingency planning must be made the number one task on the list, performed concurrently with remediation.

As for the public, they must be given enough notice and information to form their own contingency plans. Waiting to tell the public is not an option, and puts us all at an extreme disadvantage when suddenly confronted with Y2k problems.

The bottom line here is, we will experience failures and/or interruptions in critical services due to Y2k What we do not know is exactly where, how serious, or for what duration. In the face of so many unknowns, the only reasonable and responsible course of action for the administration is to inform the public. Explain in plain words what the nature of the year 2000 problem is, the complexity, likely impacts and implications, and -- above all -- what they CAN do. And there is much the public can do.

Thousands of people across the US and Canada are now taking steps to prepare for potential worst case Y2k scenarios. They are not panicking. They are making reasoned and appropriate decisions how they may best take precautions. By evaluating their personal dependence on critical infrastructure, they are developing contingency plans for themselves and their families. By talking to their neighbors, they are

learning who among them may be particularly vulnerable and unable to prepare, and -- together -- they are attempting to create a safety net for them if needed.

These people are not survivalists, paramilitary, or religious fanatics. They are doctors, school teachers, insurance brokers, firefighters and ministers. They understand that some events are beyond the scope of any organization such as FEMA or the Red Cross to respond; that Y2k problems will occur worldwide, with domino effects on a global level. People *are* willing to accept that they may need to be self-reliant for a short period of time, without the comforts and services we so often take forgranted. In addition, there is a realization that this problem has gone beyond blame; and that the time has come to put aside differences and develop new ways to work together, cooperate with our neighbors, and talk to local business and government.

By being silent or equivocal, the administration is hampering these essential grassroots efforts. Too many individuals and groups have fallen by the wayside in recent months. The vehement denial of the reality of Y2k problems, reinforced by lack of authoritative corroboration, is taking its toll. Those attempting to remediate the problems are subject to derision, hostile denial, and little or no support. A climate of acceptance of the existence of Y2k problems, backed with a willingness to discuss the broader ramifications, is necessary if remediation and preparedness efforts on all fronts are to succeed. Silence, soft-peddling, ambiguity, and hiding from the problems before us must end, *this day*.

Information given to the public will not cause 'a panic' - the primary reason given why it's not discussed. When Prime Minister Tony Blair told the British people about the year 2000 problem, panic did not ensue. What frightens people is lack of information, rumors and misstatements, and a clear lack of leadership.

In addition to providing leadership, the government must take steps to protect the public from the direct, indirect or delayed consequences of Y2k problems. There has been much discussion as to limiting liability for business and government, but *no* discussion as to limiting liability for the consumer. To that end we offer the attached draft legislation titled the "Y2K CITIZENS PROTECTION ACT". This act would shield consumers from the negative or harmful economic impacts of Y2k problems that is beyond their control.

Just as was done during WWII, the public can and should be called upon to physically and psychologically to prepare for any year 2000 challenges. The American government can serve as a model to the world what can and needs to be done to weather this global challenge. The American people have risen to great challenges in the past, and can do so again, if we but had leadership to inform, guide and support our efforts.

To close, I'd like to offer the following quote as a call to action.

Winston Churchhill said during a debate on the National Defense Posture in 1936,

> *"Owing to past neglect, in the face of plainest warnings, we have now entered upon a period of danger. The era of procrastination, of half measures, of delays is coming to a close. In it's place we are entering a period of consequences; we can not avoid this period, we are in it now. Unless this house resolves to find out the truth for itself, it will have committed an act of abdication of duty without parallel."*

DRAFT 09/22/1998

A BILL TO BE ENTITLED AN ACT

PREAMBLE

WHEREAS,

Our society is heavily reliant upon computers, technology and the rapid transfer and exchange of accurate information and data via electronic means and relies heavily upon computer technology for most all aspects of daily living and business, and

WHEREAS,

It is recognized and understood universally that the rapid growth of technology has often outpaced the equipment, software and hardware that our society utilizes for the exchange and transfer of data and other information, and,

WHEREAS,

It is apparent in our society that computer technology which was principally utilized a few years ago and is a major operational basis for much of our current hardware and software, contains an operational basis that may not recognize the change in our calendars beyond the year 1999, such that in the year 2000, many computer based systems may fail or cause incorrect data information to be processed. This deficiency in computers world wide is often referred to as the Y2K Bug and may cause significant problems with the exchange of data and information in the year 2000 and beyond.

THEREFORE,

In order to exercise the duty of this lawmaking body to protect it's citizenry, this law is hereby enacted as part of this body's duty to the citizens of this State and shall be known as the **Y2K CITIZENS PROTECTION ACT.**

IT IS HEREBY ENACTED:
DEFINITIONS
* as needed
*

1. No entity or citizen of this State or who transacts business with the citizens of this state on matters directly or indirectly affecting property, mortgages, credit accounts, banking and/or financial transactions of persons, tangible or intangible property or property interests in this State shall cause or permit a foreclosure, default or other adverse action against any person as a result of the improper or incorrect transmission or inability to cause transaction to occur, which is caused wholly or in part to a failure or inability to accurately or timely process any information or data, payment, transfer or processing of same, due directly or indirectly to the failure or malfunction of any computer processor to accurately or properly recognize, calculate, display, sort or otherwise process dates or times or other data as a consequence of such system to incorrectly process the proper date which may result in inaccurate, incorrect operations or applications, or inability to operate.

2. Further, no such person or entity may take any adverse or enforcement action whether based on contract or otherwise against any person or entity who is unable to cause payment, acts, forbearance, or other transaction in a timely manner, to occur where such failure or inability of such obligor to access or receive funds or to otherwise cause a proper transaction to occur, is due wholly or in party to the inability of either party to have such necessary data, information, payments, fund transfer, checking or other such financial transaction to occur, where it is due to the obligor's inability to properly account or the obligee's inability to access or cause their source of such transaction to occur properly.

3. The prohibition of such enforcement of obligations, shall apply particularly, but not exclusively to, mortgages, contracts, landlord tenant relations, consumer credit obligations, utilities and banking transactions.

4. No enforcement shall resume until said obligor has a reasonable time after the full restoration of the ability to regularly receive and dispense necessary financial transactions relative to such obligations.

5. This law shall not effect those transactions upon which such default has occurred prior to any such disruption of financial or data transfer operations upon either party, from whatever source or case such disruption has occurred.

6. This law shall not dissolve but shall only suspend the enforcement of such obligations.

7. This law shall prohibit the negative entry to any credit reporting agency, which operates in this State, in whole or in part, of any negative credit information which is due in whole or in part to the disruption of the otherwise proper processing of financial responsibilities and information, or the inability of the consumer to cause payments to be made to creditors where such inability is due in whole or in part to the disruption or otherwise malfunctioning of computer processing, banking or other related matters.

8. This law shall remain in effect until December 31, 2006 or such other extensions as approved by this legislative body

9. All other laws to the contrary, notwithstanding where in the Code of Laws they shall appear, are hereby Amended to comply with this law.

BIO for Paloma O'Riley

Mrs. Paloma O'Riley
The Cassandra Project
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cassandra@millennia-bcs.com

Paloma O'Riley has an unusual background. Born in New York, she's spent part of her life in the homesteading in Alaskan bush, what is now the Wrangell-St. Elias National Monument. She and her family lived a self-sufficient life-style, gardening and hunting for food, and fur trapping and commercial salmon fishing for income. This life-style has given her a unique understanding of how resilient and creative people can be when faced with extreme situations and limited resources; and enables her to provide experienced guidance and support for those interested in planning for possible year 2000 critical infrastructure failures.

Paloma O'Riley has been head of Computing Security for Boeing's Human Resources division in Seattle, Wa., served as a Division of Emergency Management volunteer; and helped pull together a group of volunteers from around the country to assist cleanup efforts after the Los Angeles riots--for which she received recognition. Most recently she was a Year 2000 Project Manager for Rover Group, Ltd., in England.

O'Riley first learned of the Year 2000 problem in 1990 while serving as Assistant ADP (Computing) Security Officer for Oakland Naval Hospital, during Operations Desert Shield and Storm.

Paloma co-founded "The Cassandra Project" in June 1997, due to very personal concerns about how the year 2000 problem could impact her family, friends and neighbors; and is currently the Director of Research and primary speaker for the Project. She recently joined "Infrastructure Defense" as a member of their advisory board, a not-for-profit established as an international clearing house for year 2000 information.

Other activities include working with local neighborhood and community preparedness groups, and traveling the country speaking with individuals and business about the community impact aspects of Y2k.

In her spare time, she is working on a book about the humorous side of life in the Alaskan bush titled, "Half-baked Alaskan". Currently living in Colorado with her family, she still owns 40 acres of wilderness property near Talkeetna, Alaska--conveniently located only 15 miles from the nearest road.

O'Riley has written:

- "Why the Year 2000 is a Threat to Public Health and Safety"
- "Individual Preparedness for Year 2000", and
- "Year 2000 (Y2K) Problem - Summary for Small Business Owners".

Her work has been widely quoted and distributed. Among the most recent examples are:

--Rick Cowles book "Electric Utilities and Y2K"; the and Y2Ki Year 2000 resource CDROM; and a Y2K CDROM produced by the US Department of Commerce distributed internationally.

O'Riley has been interviewed by the NY Times, London Sunday Times, USA Today, WIRED magazine, etc.; and appeared on CSpan, FOX News Channel, Nightline, CBN, etc., and several local TV stations, and national radio networks.

* The Cassandra Project is a nonprofit whose focus is Y2K public health and safety related issues, and community preparedness. It promotes at-home grass roots participation in contingency planning for individual and community preparedness activities. It does not charge for any information or services.

It has helped fostered development of (currently) 100+ Community Preparedness groups in the US and Canada; is working with Colorado State and Governor's office to enhance their current Year 2000 Project.

The Project was recently awarded the "Social Innovations Award" for 1998, presented by the Institute for Social Inventions, London, England.

The website was launched in September 1997, and attracts over 500,000 visitors a month.

September 22, 1998

The Honorable Constance Morella
Chairwoman
Subcommittee on Technology
2319 RHOB
Washington, DC 20515

Dear Chairwoman Morella:

The Cassandra Project receives no Federal Funding, directly or indirectly.

Paloma O'Riley
Director
The Cassandra Project
PO Box 8
Louisville, CO 80027
303-664-5227 GMT-7

Chairwoman MORELLA. Thank you, Ms. O'Riley. That was a very apt quote to conclude with. Mr. Hyatt, be pleased to recognize you, sir.

TESTIMONY OF MICHAEL HYATT, AUTHOR, THE MILLENNIUM BUG

Mr. HYATT. Thank you. Chairwoman Morella, Chairman Horn, and distinguished members of the Subcommittees, because of the popularity my book has enjoyed, I've had the opportunity to appear on some 300 radio talk shows and television programs, many of those with callers. In addition, I've spoken to numerous trade associations, businesses, and community groups across the country, and in the course of these activities, I've talked with thousands of consumers that have learned firsthand about their hopes, their concerns, and their fears, specifically as they relate to the Year 2000 computer program. And it's on the basis of that experience that I'd like to address you today.

Though the experts may disagree about the nature and severity of the disruptions that will occur as a result of the Year 2000 computer problem, all are agreed that some level of disruption is now inevitable. We do not know whether this will be a heartburn or heart attack, but we do know that in the time remaining it is impossible to get all of our systems repaired before January 1, 2000.

The failure of these systems will undoubtedly affect government agencies, infrastructure providers, and businesses, both large and small. But ultimately it will affect each of us individually, including our associates at work, the people in our neighborhoods and churches, and our friends and family. And, thus, in a very real sense, Y2K is a consumer issue. When these systems fail, as surely some of them will, it is consumers who will feel the impact.

With only 463 days remaining before January 1, 2000, I would like to suggest a three-prong strategy for mitigating the consumer impact of Y2K.

First, we need to continue to build awareness at every level, and amazingly, contrary to my colleague's statistics, some two-thirds of our population, according to Luntz research companies in a September the 14th poll that was done, two-thirds of our population are still unaware of the problem and the threat it poses to our society.

Second, we must continue to press for compliance. The more we get done between now and January 1, 2000, the more likely we are to reduce the severity of the disruptions that follow and the impact on our consumer population.

Third, and perhaps most important from a consumer perspective, we must begin now to make contingency plans. We must embark upon a comprehensive program of emergency preparedness.

I would like to speak to each of these issues in the time I have remaining. First, awareness. I've detected a disturbing attitude in Washington and elsewhere as I've traveled the country. There are those, who if not saying it directly, are acting as if the people cannot be trusted with "dangerous information." Someone has suggested that if people know the truth, they will panic. But contrary to conventional wisdom, I say, "Panic now and avoid the rush." People cannot panic for 15 months. They probably cannot even

panic for a week. And if they are going to panic, fine, let's get it out of our system so that we can get down to the difficult business of emergency preparedness.

Our people must have full disclosure, not merely the progress being made, but also the impact of not finishing. Not merely the optimistic vagaries of programmers under pressure and the calm assurance of public relations managers and their legal advisers, but specific, objective, and routine reports outlining the number of systems in inventory, how many are mission critical, what percentage are repaired, and based on current rates of progress, when a given organization expects to hit certain critical milestones. And this is particularly important for infrastructure providers. Even if this data is self-reported, as much of it is today even among the Federal Government agencies, it is better than no data at all.

Second, compliance. In stating that I do not believe we will get 100 percent of our computer systems repaired in time, I am in no way suggesting that we simply throw up our hands, walk away from our jobs, and cave into the inevitable fate that awaits us. To the contrary, we must redouble our efforts and do as much as possible to get our computers and embedded chip systems ready for the next century. The amount of disruption we will face in the first few months of the next century will be directly related to the amount of work that gets done in the next 15 months. Therefore, it's imperative that we keep our programmers and Y2K project managers focused on the task at hand.

Third, preparedness. In the final analysis, consumers have very little influence over whether the organizations they depend upon to get their computers repaired, get them repaired in time. This does not mean that they, we, have to become victims, but it does mean that we must become proactive, take the initiative to make contingency plans, and engage in a little old-fashioned emergency preparedness. I'm not talking about the kind of "head for the hills" survivalism that the press loves to report. I am talking about simple, common sense preparedness. The kind our parents and grandparents used to engage in before my generation, and perhaps your's, bought into the myth of continuity and unending prosperity.

In this sense, Y2K preparations are no different from preparing for any kind of significant disruption. While those in the public and private sectors are preparing business continuity plans, individual consumers must make life continuity plans. In other words, they must determine how they continue to meet their own needs and those of their loved ones in the face of a possible disruption of basic services. This is especially true, and as people I've talked to across the country have attested, especially true when it relates to food, water, shelter, and especially heat.

What can Congress do? At least three things: First, Congress can continue to help build awareness. The Subcommittee on Government, Management, Information, and Technology has made great strides in public awareness, especially by publishing its quarterly report card, but I believe that even more can and must be done. For example, the United States Congress should take a page from the United Kingdom's plan and require or fund a blitz of media advertising on Y2K to reach the general public. Today in London you cannot turn on the television set, or walk down the street without

seeing a Y2K commercial or a Y2K billboard. Such a campaign may be far outside the normal realm of Congress' day-to-day business, but it is little different than the massive campaigns for public education on various issues during World War II. And we are in a very real sense at war with Y2K. The model should be taken out, dusted off, and immediately implemented.

In addition, each Member of Congress can host a special Y2K summit in their home District, as Congressman Bob Clement did this past Monday in Nashville, Tennessee. I had the privilege of participating in that first of its kind conference. And the summit brought together key government officials, infrastructure providers, business leaders, and consumers in a public forum to discuss the Year 2000 computer problem.

Second, Congress can encourage consumers to make personal contingency plans. Every family that prepares for itself is one family someone else, including the government, does not have to take care of in a crisis. Thus, emergency preparedness should not be discouraged or inhibited by any government agency or bureaucracy. In fact, in order to motivate this kind of behavior, I would propose that Congress commission a study on the feasibility of allowing consumers to deduct preparedness expenses up to a pre-determined limit on their federal income tax returns. However, Congress must move quickly if this is to have any practical benefit.

And, third, Congress can encourage religious organizations and private charities to prepare for those who either don't have the means or the foresight to prepare for themselves. Already organizations and voluntary associations are spontaneously springing up across the country to do just this. Many churches and neighborhood associations have started a Y2K task force to build awareness and coordinate preparedness. The poor, the elderly, and the disabled are particularly at risk and must be considered, and efforts to care for them must be encouraged.

In conclusion, let me say again ultimately Y2K is a consumer issue. Unresolved Y2K problems will disrupt the lives of our citizens and your constituents to a greater or lesser extent, and when they do, these consumers, these voters, will remember what you did or did not do in the face of this national crisis. Our survival as a Nation and as a people depends upon what you do in the remaining months between now and January 1, 2000.

Thank you.

[The prepared statement and attachments of Mr. Hyatt follow:]

Statement of

MICHAEL S. HYATT

Author of *The Millennium Bug: How to Survive the Coming Chaos* (Washington, D.C.: Regnery, 1998)

Before the

SUBCOMMITTEE ON GOVERNMENT MANAGEMENT, INFORMATION, AND TECHNOLOGY

Of the

COMMITTEE ON GOVERNMENT REFORM AND OVERSIGHT

And the

SUBCOMMITTEE ON TECHNOLOGY

Of the

COMMITTEE ON SCIENCE

September 24, 1998

Chairman Horn, Chairwoman Morella, and Distinguished Members of the Subcommittees:

My name is Michael Hyatt. I am the author of *The Millennium Bug: How to Survive the Coming Chaos*, published by Regnery Publishing of Washington, D.C. The book is currently on the *New York Times* "Business Best Sellers" list.

Because of the popularity my book has enjoyed, I have had the opportunity to appear on some 300 radio talk shows and television programs. In addition, I have spoken to numerous trade associations, businesses, and community groups across the country. In the course of these activities, I have talked with thousands of consumers and have learned first-hand about their hopes, concerns, and fears as they relate to the Year 2000 Computer Problem. It is on the basis of that experience that I address you today.

Though the experts may disagree about the nature and severity of the disruptions that will occur as a result of the Year 2000 Computer Problem, all are agreed that some level of disruption is now inevitable. We do not know whether this will be a "heartburn" or a "heart attack," but we do know that, in the time remaining, it is impossible to get all of our systems repaired before January 1, 2000. The failure of these systems will undoubtedly affect government agencies, infrastructure providers, and businesses both large and small. But ultimately, it will affect each of us individually, including our associates at work, the people in our neighborhoods and churches, and our friends and family. Thus, in a very real sense, *Y2K is a consumer issue.* When these systems fail—as surely some of them will—it is consumers who will feel the impact.

With only 463 days remaining before January 1, 2000, I would like to suggest a three-pronged strategy for mitigating the consumer impact of Y2K.

— First, *we need to continue to build awareness at every level.* Amazingly, some two-thirds of our population are still unaware of the problem and the threat it poses to our society.*

* According to Luntz Research Companies in a September 14, 1998 poll commissioned by Infrastructure Defense, Inc. See <http://www.y2ktoday.com/modules/news/newsdetail.asp?id=282> for full story.

— *Second, we must continue to press for compliance.* The more we get done between now and January 1, 2000, the more likely we are to reduce the severity of the disruptions that follow and the impact on our consumer population.

— Third, and perhaps most important from a consumer perspective, *we must begin now to make contingency plans.* We must embark upon a comprehensive program of emergency preparedness.

I would like to speak to each of these issues in the time I have remaining.

Awareness

I have detected a disturbing attitude in Washington and elsewhere as I have traveled the country. There are those who, if not saying it directly, are acting as if the people cannot be trusted with "dangerous information." This attitude betrays a fundamental presupposition about our citizens that I do not share: that is, if people know the truth they will act irrationally and without concern for their neighbors. While this may be true in isolated incidents, it is not true of our people as a whole, as any cursory reading of our history will show.

Some have suggested that if people know the truth, they will panic. Contrary to conventional wisdom, I say, "panic now and avoid the rush." People cannot panic for fifteen months. They probably cannot even panic for a week. If people are going to panic, fine. Let's get it out of our system, so that we can get down to the difficult business of emergency preparedness.

In contrast to the notion that the people cannot be trusted with the truth, I subscribe to another supposition: "the truth shall make you free." Our founding fathers believed (and we ourselves have no doubt espoused) that our republic cannot function properly without an informed citizenry. This is true in elections and it is also true in facing an uncertain future.

Our people must have full disclosure. Not merely the progress being made, but also the impact of not finishing. Not merely the optimistic vagaries of programmers under pressure and the calm assurance of public relations managers and their legal advisors, but specific, objective and routine reports outlining the number of systems in inventory, how many are mission critical, what percentage are fixed, and, based on current rates of progress, when a given organization expects to hit certain critical milestones. Even if this data is self-reported, it is better than no data at all.

Our people can handle the truth and will plan accordingly. But they cannot—and will not—do this unless they are told the truth. In the absence of the truth, people only have their perceptions. And in our service-oriented, market-driven economy, these perceptions can shape reality in either positive or negative ways. For example, if consumers believe our financial system to be fundamentally stable, they will trust our banks and our system will function as normally as Y2K systems disruptions will allow. On the other hand, if consumers suddenly "wake up" in October of 1999 and overreact to any perceived threat to the financial system, they will want to withdraw their funds in a disorderly manner, and we'll end up with a good old-fashioned bank run. We also all know that a perceived crisis could rival the actual crisis from unready technology.

But the answer is not to limit the information that is disseminated. The answer is to increase that information flow *now.* Everywhere I and my colleagues go, we run across people who:

1. have never heard of this issue (they say "Y2K-what?");

2. think that this is something Bill Gates is going to fix; or

3. think that Y2K is a publicity stunt (I have had callers on the radio tell me that Y2K was obviously a gimmick Bill Gates thought up to make more money).

Furthermore, even our efficient, market-driven economy will face immense difficulties responding to increased consumer and business demand for products and services (everything from power generators for a home to compliant robot components for a pharmaceutical company), unless our consumers and businesses become aware that they must start ramping up that demand now. Even the most efficient and flexible manufacturing company will be unable to handle a sudden 2000 percent spike in demand for its Y2K-compliant widgets without sufficient lead time.

Compliance

In stating that I do not believe we will get 100 percent of our computer systems repaired in time, I am in no way suggesting that we simply throw up our hands, walk away from our jobs, and cave in to the inevitable fate that awaits us. To the contrary, we must re-double our efforts and do as much as possible to get our computers and embedded chips systems ready for the next century. The amount of disruption we will face in the first few months of the next century will be directly related to the amount of work that gets done in the next fifteen months. Therefore, it is imperative that we keep our programmers and Y2K project managers focused on the task at hand.

Whether we like it or not, January 1, 2000 will come precisely on schedule. President Clinton cannot sign an executive order extending the deadline. David Copperfield cannot wave a magic wand making the problem vanish into thin air. And no religious leader can make the sun stand still as Joshua did with the Amalekites, so that we can finish the mountain of work that still remains. As a result, we must continue working at breakneck speed in order to mitigate the disruptions ahead.

Preparedness

In the final analysis, consumers have very little influence over whether the organizations they depend upon get their computers repaired in time. This does not mean that they—we—have to become victims, but it does mean that we must become proactive, take the initiative to make contingency plans, and engage in a little old fashioned emergency preparedness.

I am not talking about the kind of head-for-the-hills survivalism that the press loves to report on. I am taking about simple, common sense preparedness. The kind our parents and grandparents used to engage in before my generation and yours bought into the myth of continuity and unending prosperity.

In this sense, Y2K preparations are no different than preparing for any kind of significant disruption. While those in the public and private sectors are preparing *business continuity plans*, individual consumers must make *life continuity plans*. In other words, they must determine how they can continue to meet their own needs and those of their loved ones in the face of a possible disruption of basic services. This is especially true as it relates to food, water, and shelter—especially heat.

In principle, preparations of this kind are no different than buying insurance. I have personally never had a fire in my home, let alone had my home burn down. Yet, I would never consider canceling my fire insurance. It is not the probability of a fire that motivates me, but the catastrophic nature of the loss if it were to occur. Y2K is no different. I do not need to be convinced of the *certainty* of Y2K disruptions in order to prepare; in fact, I do not even need to be convinced of the *probability*. The mere *possibility* should be sufficient reason to motivate any prudent person.

What Can Congress Do?

What can Congress do in light of the above? At least three things:

First, Congress can help build awareness. The Subcommittee on Government Management, Information and Technology has made great strides in public awareness, especially by publishing its quarterly "report card." But I believe that even more can be done. For example, the United States Congress should take a page from the United Kingdom's plan, and require or fund a blitz of media advertising on Y2K to reach the general public. Today in London you cannot turn on the television set or walk down the street without seeing a Y2K commercial or a Y2K billboard. The British public is being told that they must prepare their homes and businesses, and the money spent on this will pay off immensely down the road if it prevents panic and enhances preparedness.

Such a campaign may be far outside the "normal" realm of Congress's day-to-day business, but is little different than the massive campaigns for public education on various issues during World War II. We are in a very real sense at war with Y2K. That model should be taken out, dusted off, and immediately implemented.

In addition, each member of Congress can host a special "Y2K Summit" in his or her own home district as Congressman Bob Clement (D-Tenn.) did this past Monday in Nashville, Tennessee. I had the privilege of participating in this first-of-its kind conference. The summit brought together key government officials, infrastructure providers, business leaders, and consumers in a public forum to discuss the Year 2000 Computer Problem. The public was given a briefing on the problem, including what is being done, and then allowed to ask questions. While this is only a beginning, it was an important beginning, and one that I hope other communities will emulate and improve upon. It is precisely this kind of leadership that we need, especially from our elected officials.

Second, Congress can encourage consumers to make personal contingency plans. Every family that prepares for itself is one family someone else, including the government, does not have to take care of in a crisis. Thus, emergency preparedness should not be discouraged or inhibited by any government agency or bureaucracy. In fact, in order to motivate this kind of behavior, I would propose that Congress commission a study on the feasibility of allowing consumers to deduct preparedness expenses (up to a pre-determined limit) on their federal income tax returns. However, Congress must move quickly if this is to have any practical benefit.

Third, Congress can encourage religious organizations and private charities to prepare for those who either don't have the means or the foresight to prepare for themselves. Already, organizations and voluntary associations are spontaneously springing up across the country to do just this. Many churches and neighborhood associations have started a "Y2K Task Force" to build awareness and coordinate preparedness. The poor, the elderly, and the disabled are particularly at risk and must be considered. Efforts to care for them must be encouraged.

In my estimation, this does not require any new infrastructure or federal programs. In fact, it requires the wholesale use of *existing* infrastructure. This means that existing agencies must become aware of the Y2K problem and the threat it poses. Congress must encourage these agencies to make plans now to offer assistance to those in need in the days ahead. Most importantly, Congress must encourage these agencies to cooperate with other local initiatives and not become a threat to them. As your committee has noted in the past, the government's own normal emergency response abilities may be in doubt once Y2K hits. Our ability to respond to whatever level of crisis occurs, will therefore be dramatically affected by how well you encourage our existing community infrastructure to prepare in advance.

Summary

In conclusion, let me say again: *ultimately Y2K is a consumer issue.* Unresolved Y2K problems will disrupt the lives of our citizens, and your constituents, to a greater or lesser extent. And when they do, these consumers—these voters—will remember what you did or did not do in the face of this na-

tional crisis. Our survival as a nation and as a people depends upon what you do in the remaining months between now and January 1, 2000.

Thanks you for giving me this opportunity to share my thoughts with you today.

Michael S. Hyatt

Michael S. Hyatt is the nation's leading Year 2000 consumer advocate. His book, *The Millennium Bug: How to Survive the Coming Chaos* (Regnery, 1998), is currently #7 on the *New York Times* Best Sellers List and among Amazon.com's "Hot 100 Best-selling Books." His ability to discuss complex technical matters in plain English has made him a much sought-after media guest and keynote speaker. As a result, he has appeared on more than 250 radio shows, including "The G. Gordon Liddy Show," "The Tony Brown Show," "The Bob Grant Show," "The Oliver North Show," "Janet Parshall's America," "Consumer Hotline" and NPR's "Public Interest."

Professionally, Hyatt has worked in the publishing industry for nearly 20 years. Currently, he serves as Senior Vice President and Associate Publisher of Thomas Nelson Publishers, the country's tenth largest book publisher. In this capacity he is responsible for all product development and also serves on the company's "Year 2000 Task Force." As a result, he has first-hand experience dealing with the complexities and challenges of the year 2000 computer problem from a corporate perspective.

Although not a computer expert, Hyatt has a good deal of computer expertise. He has been heavily involved with personal computers since 1982, when he bought one of the first IBM-PCs. Self-taught, he is fluent in Pascal and three dialects of BASIC. As a part-time programming enthusiast, he has written numerous custom applications for his own use and other companies around the world. He is the author of two shareware packages that are commercially available on the Internet. He is also an active beta-tester for several large software publishers.

He has been married to his wife, Gail, for twenty years. He has five daughters, ages 7–18 and lives with his family outside of Nashville, Tennessee.

Michael S. Hyatt
6022 Foxland
Brentwood, TN 37207

September 23, 1998

To Whom It May Concern:

I have not received and am not receiving any federal funds related to my Y2K activities.

Sincerely,

Michael S. Hyatt

Chairwoman MORELLA. Thank you very much, Mr. Hyatt. That was very helpful. I think the testimony was splendid. I'm now going to defer to the co-Chair of the Y2K task force, also the co-Chair of this hearing, Mr. Horn, who is, as you've mentioned, the preparer of the report card.

Chairman HORN. I thank all of you for your testimony. I've enjoyed hearing it. I'm going to have to leave for the Floor where we have some major battles this afternoon.

Let me just ask a few general questions, and we've got enough members here to keep you busy for the rest of the afternoon. Are manufacturers now using only Year 2000 compliant embedded chips in their products? What do you know about that, Mr. Shapiro?

Mr. SHAPIRO. My understanding is that they are. I have not heard of any that are not.

Chairman HORN. Okay.

Mr. SHAPIRO. They have been for some time.

Chairman HORN. Are they guaranteeing that in a manufacturer's warranty, or how does that work?

Mr. SHAPIRO. I think any product sold has several warranties associated with it, the express warranty, the implied warranty of merchantability. And I believe that would be covered under the implied warrant of merchantability.

Chairman HORN. Do they specifically mention that it's 2000 or Y2K compliant?

Mr. SHAPIRO. I believe some are. That has not yet been, to my knowledge, a major issue with consumers. And so many of the products just don't even—consumer electronics products—don't even have anything to do with this. I think manufacturers sometimes face a challenge in getting out as much information as possible about their products, and they're always sensitive to overwhelming the consumer with information.

Chairman HORN. Does anybody have a comment on that? Yes, Mr. Beach?

Mr. BEACH. Chairman Horn, I have with me here the compliant statement from Microsoft Corporation. I'd like to read it to you and underscore a point.

Chairman HORN. Please do.

Mr. BEACH. "A Year 2000 compliant product from Microsoft will not produce errors processing date data in connection with the year change from December 31, 1999, to January 1, 2000, when used with accurate date data in accordance with its documentation, and recommendations, and exceptions set forth in the Microsoft Year 2000 Product Guide provided all of the products," and this is the key point, parentheses, "other software, firmware, and hardware are used with a properly exchanged date data with the Microsoft product. A Year 2000 compliant product from Microsoft will recognize the Year 2000 and the leap year. The Microsoft statement of compliance does not constitute a warranty or extend the terms of any existing warranty."

I'm not picking on Microsoft. To their credit, they have a very good portion of their site addressing Year 2000. What it addresses is that when a product is shipped from Redmond, it may be compliant. But not only just computers, but consumer electronics devices

increasingly are being connected to other computers, and other computers and other devices and that's where the compliance paradox comes in that you just don't know. Mr. Shapiro is right. A product could have not a problem when it's shipped. It hooks into a network and an embedded chip problem might occur.

Chairman HORN. Well, and it certainly tries to keep the clones out, or the equipment and software and other things that are made abroad that aren't under their licensure. So I don't know if that's simply drafted by lawyers to scare them into buying only Microsoft products or what. How would you interpret it?

Mr. BEACH. I would interpret it as Microsoft, or any other company, really doesn't know what's going to happen, and that statement is a pretty broad brush stroke statement that is saying as they can, they're vulnerabilities facing Year 2000 with the products that they produce.

Chairman HORN. Is that the only one of the major software providers or are there others?

Mr. BEACH. That have a statement like this?

Chairman HORN. Yes.

Mr. BEACH. No, some of them are better than others, but many of them are along these lines.

Chairman HORN. Because I think the average consumer wants to know without a lot of mumbo jumbo is this thing 2000 compliant or isn't it before I buy it? And I learned long ago, I don't trust anybody that says anything about a computer. I learned that as a university president. You're just constantly misled, and that bothers me.

Mr. BEACH. I'll let my esteemed colleagues comment, but just one last point on that comment. Mr. Hyatt mentioned something that was very interesting. We should avoid the rush and what may come with the rush is a panic.

There was a very interesting article written by a woman in the UK that looked back at what happened in the Year 2000. And one of the problems she mentioned was that in the fourth quarter of 1999, people couldn't get through the manufacturers asking them is this product compliant or not, and ergo the downside of a rush to panic set in. So I agree with Mr. Hyatt's comments, do it now.

Chairman HORN. When we were in Cleveland on one of our field hearings over the recess, we had very interesting testimony by a representative of the Cleveland Clinic, which is one of the major medical centers in the United States. And from one he told us, the people in hospitals looking at the emergency room equipment and all the other types of things that have embedded chips, they have a site now where they can put up what the manufacturer is for that particular design model, and whether the manufacturer is warranting that or not. And saving a lot of people reinventing the wheel 20,000 times over. Are you aware of, in your journalistic roles, are you aware of other things like that going on within the computer community, computer-user community?

Mr. BEACH. I must answer that the only idea I've heard along those lines was one shared with me from the Office of the Vice President of an idea to create a site which would ask medium to large companies to post on that site products that are compliant. It was an effort to help smaller companies, as you were saying so

they don't have to reinvent the wheel, just go on to the site, put in a product, is this fax machine compliant? Is this computer compliant? That's the only other thought I've heard in that area.

Chairman HORN. Well, you might want to look at the people—we can give you the witnesses names and so forth, but I think that's one way to solve this problem. You mentioned the digital corps, that's a good idea. And I think just by people cooperating between industries within industry groups, big and little, and as I said earlier, that was one of the things I was pleased to find when some people said, "Yes, we're working with our worst competitor." And they meant "worst" in the sense that they're their best competitor and out-doing them sometime and they're cooperatively working.

And that's in essence what the President and Secretary Cohen are doing with the superpower known as Russia, ex-Soviet Union, to share some of our way of looking at those chips, and see if we can take the risk out of the missiles pointed at each other, which we don't particularly appreciate, that can be re-pointed any time, in a matter of minutes practically.

So I would think all of those little things, your fine journal, which is a very readable journal, I might say, and well done in topography and printing and all the rest of it, so I think that would be a good thing to get out in the community.

That's really all the questions I have. There are a lot of basic questions, I'm sure my colleagues will ask them. And I thank you again for coming.

Chairwoman MORELLA. Thank you. I guess I'll start off with Mr. Beach because you gave those statistics. And I remember reading some time ago, maybe in May, a Wirthlin report that had been done, a survey that had been done. It seemed to me one out of every four people queried did not—one out of every four are aware of even the problem. And he sort of found a scale, the more highly educated were the least concerned about it. Those who had the least amount of education were the ones who panicked when they heard about it. And I'm just wondering how your survey kind of compares with that? If anyone would like to comment on that?

Mr. BEACH. Just briefly, we did demographics on income and the awareness of the problem grew as the household income grew. It went down with age. So the younger the respondent, the highest cell of people not aware of the problem was under 25.

I would also like to comment on Mr. Hyatt's survey which mentioned in the 60's the awareness level. Our survey showed 38 percent definitely were not aware of the problem at all. And those that were aware, we went into three gradations: extremely aware, somewhat aware, or a little aware. And if you take the percentage of a little aware, and you combine it with totally unaware, you come into that 60 percentile level.

Chairwoman MORELLA. Which is in and of itself, you know, rather frightening because we like to educate people to be good consumers also.

I was interested also, Mr. Hyatt's—I guess it was Mr. Beach's statistics that showed 12 percent would blame government, but more would blame the Administration. Is that what you had? The Vice President?

Mr. BEACH. I should clarify that that's the question we asked. The Vice President has a high visibility in the information technology business. The general election will be in November. January 1st, Year 2000, of course, is the issue we're talking about here. The question we asked was, "If there are significant Year 2000 problems, do you think this is going to jeopardize Vice President Gore's Presidential aspirations?" And 55 percent said, "Yes."

Chairwoman MORELLA. I have an article here that I thought was very amusing. It's called "Y2 Crazy." It's from The Recorder. I don't know if you've ever heard of that. But what it does is it talks about is Al Gore going to be blamed, you know, when we come to January 1 in the Year 2000. Who is going to be blamed? And mention was made that Congress was way ahead. Congress has been moving ahead on this and sounding the alarm. The bottom line, however, is that what can save people from getting blamed, is that they're optimistic. It's interesting—it cited former President Reagan, if you can be optimistic about it and say, "We're going to be fine," then you don't have the difficulty of being perceived or the problem of being perceived as being responsible or something.

So I was thinking that my feeling is sort of like between Chicken Little who said, "The sky is falling;" and Pollyanna who said, "Everything is fine." And with your help, you are working toward that.

I have a lot of questions to ask. I'm going to defer to my colleagues first so they can ask questions and then get back to me, with the exception of asking you about the legislation. Several of you have already mentioned that you think Congress should move ahead. I think even that term "fast-track" was used in a different context, that we should move ahead with the legislation. I'm sure that you're talking about the kind of combination of the bill that was put in by request of the President and the other bill by Representative Drier, and I'm a cosponsor of, is comparable to what the Senate is doing with Hatch. Would you like kind of go through the ranks and give your comments on that? Mr. Holleyman?

Mr. HOLLEYMAN. I, again, Madam Chairwoman, I think we believe that legislation, that Drier legislation, which you've cosponsored and the Hatch-Leahy version in the Senate, that is a good first step because it will, we believe, the best tool for consumers is to get more information out there. A lot of companies are already moving ahead disclosing where they think there may be problems, and we certainly of our companies that we surveyed on their Website, they all identify which of their products are Y2K ready. But to the extent that some companies may have reservations because of concerns about potential legal action, if they act pro-actively to make the disclosure, we think that this legislation is a reasonable first step.

But we would also encourage to look even beyond this legislation, particularly because in our industry there have been a number of lawsuits that have been filed against companies claiming the software was not Year 2000 compliant. And in least one of these recent cases, it was dismissed by the court as being premature because we don't know if these problems are there yet. Companies are coming forward with a lot of patches, with a lot of fixes. And so we do believe it's also appropriate for Congress to look beyond the Drier legislation to determine whether there should be additional legislation

that would be intended to prevent frivolous lawsuits from being brought, and certainly to prevent premature lawsuits from being brought before we know what the scope of the problem is.

Mr. SHAPIRO. We agree.

Chairwoman MORELLA. All right. Would you like to comment on that, Mr. Beach?

Mr. BEACH. Just briefly, that I believe the bills are a step in the right direction, but I would encourage more action. Congressman Horn was mentioning how—Mr. Hyatt was—how in Tennessee last week there was a caucus or a meeting on the Year 2000. Also, from our conversations with CIO's sharing of best practices is not something that companies easily do.

Chairwoman MORELLA. Mr. Hyatt, do you agree or Ms. O'Riley?

Mr. HYATT. Yes, I would say that in general I agree with this legislation. And I can tell you from being out and interviewing infrastructure providers in particular, telecommunications companies, utility providers, and others, even at our summit last Monday in Nashville, where we had several representatives, they step forward in sort of a spirit of disclosure, but what they gave was sort of an ambiguous assurance that kind of left us wondering after 10 minutes of talking what in the world they said.

So the kind of disclosure that we need is specific disclosure. We need the kind of disclosure that the Congress is requiring of Federal Government agencies where we've got the number of systems that still need to be fixed, the progress, estimated completion times, and so forth.

I honestly think that consumers will not panic with that information if they're told the truth. My concern is that if these people or these companies, and entities, and agencies continue to hedge the truth, and continue to act as if all is well, and then we get well into next year, and then consumers do find out that all is indeed not well, then my concern is that they will do what is reasonable at that point and that is panic.

Ms. O'RILEY. I'll save us some time and say that I agree with both Mr. Hyatt's and Mr. Beach's viewpoints on the legislation.

Chairwoman MORELLA. You sound like a politician.

[Laughter.]

Well, I think that what we do hope will happen is that piece of legislation will pass before we adjourn or recess subject to the call of the Chair for this particular Congress.

I think we also, as we look into liability, and further legislation, I think we have to be very cautious that we're not letting companies off the hook. We've got to make sure that they're not going to hide behind legislation that would not be something that encourages them to move ahead to fix the product, but getting your input, as we move along, will be very important. Also in terms of what other hearings there might be in terms of liability and more extensive data exchange.

It's now my pleasure to recognize Mr. Kucinich from Ohio for his questioning.

Mr. KUCINICH. Thank you very much, Madam Chairwoman. I'd like to begin with Mr. Shapiro. I've looked carefully at your testimony, and I've noted that, according to your testimony, a number of the areas that consumers would be concerned about, VCR's,

camcorders, and desktop computers, a number of these machines were purchased after a time where the Y2K problem isn't particularly relevant. Is that correct? Where they seem to be Y2K compliant? Is that what your testimony is?

Mr. SHAPIRO. By implication, I'll say most of the products that Americans have now are Y2K compliant.

Mr. KUCINICH. Let's talk about those products which Americans have right now that are not. What's industry's responsibility to those American consumers who may have products in their homes that won't work correctly after the Year 2000?

Mr. SHAPIRO. That's a fair question. It's a difficult question. Just simply trying to quantify how many products are out there is very difficult. I mean it clearly ranges from zero to several thousand or potentially several hundred thousand. And those products will be at least, by our estimate, 13 or 14 years old.

The Federal Trade Commission, it's my understanding, has determined at one point that the obligation of a manufacturer to provide a customer who has offered a customer total satisfaction guaranteed, is a 10-year obligation. When those products were purchased, especially those products that were fairly expensive and the people who bought them were very "early adopters," as we call them. They were about 1 or 2 or 3 percent penetration at that time. Any time you are an early adopter of a consumer electronics product, candidly, there is a certain amount of risk you're taking that the product will improve over time, that some of the features that are being sold will be rendered unusable simply by market demand, or that the product will certainly come down in price and be much better in the future. All those products that were sold can be purchased today for about one-third the price, and will be two or three times as good with a lot more features.

But when we try to come up with analogies in that, we do think about the people who bought the Sony Betamax, for example. They took a risk and they certainly didn't get compensated for choosing what was a good format, but didn't win in the marketplace, or digital audio tape recorders, or 8-track, or some of the other products. While people who bought cars and kept them that use only leaded gasoline. Certainly there will—we've expect some consumers out there, we're not sure of the number, but we feel pretty confident that it's going to be low, a very small number of consumers. And I don't know how manufacturers and retailers will respond to them.

Mr. KUCINICH. Is there anybody at the table who knows how manufacturers might respond those Americans who have purchased long ago electronic equipment which is not Y2K compliant? Anyone want to try?

Mr. BEACH. Congressman, not particularly to that question but an idea, if you want to see a grown man cry, go to a consumer at a electronics store and say, "No," when they want to sell an extended warranty. So an idea might be, the World Bank says there are 25 billion embedded chips out there, and that estimates are between 3 and 5 percent might have a problem come the Year 2000. So an idea might be that manufacturers going forward offer a consumer a Year 2000 warranty, and place the bet that the 3 to 5 per-

cent of the products are going to fail and not theirs because they believe their products are compliant.

Mr. KUCINICH. Well, that's very interesting. It's also interesting to see from testimony here that there will be Americans who are not going to be protected. And I would suggest to the industry and to the Chair that the extent to which some Members of Congress may be willing to support legislation that might give assistance to the industry in solving Y2K problems is the extent to which the industries show some willingness to protect those Americans that may have products that they've taken good care of over a long period of time, and not simply dismiss them because they didn't have the prescience, the foresight, or the money to buy into the newer technologies.

There is a political element here too which I'm sure that you're not unaware of. But you are aware of some political elements. And I'd like to ask Mr. Beach how is it that you came to ask a question about the politics of the Year 2000, mentioning Mr. Gore? I'm very interested in that.

Mr. BEACH. The honest answer was in February, I write a column in CIO Magazine, and in February, I was under a deadline for a column. And I was at the Balsam's Hotel in the far reaches of New Hampshire, and you might know that's in Dixville Notch, and that's where the people go at 12 o'clock in the evening to vote on the primary in New Hampshire. And I had to write a column, and I was thinking about Year 2000, and I was thinking then that the most important date for the Vice President would not be March 14th, Year 2000, but January 1st. And then we phrased that question like that into the survey. That's how it happened.

Okay, I appreciate your candor in sharing that so it may be a matter of man against white space than it was a matter of—the scope of the Y2K challenge and society. With that said, 55 percent of the people did agree with the premise that we hypothesized with them that this could pose a challenge to the Vice President.

Mr. KUCINICH. Did you poll the credibility of Mr. Gates or any other software people, how they would fare if all of sudden people found that their software wasn't working or embedded chips weren't working?

Mr. BEACH. We just asked about the Vice President.

Mr. KUCINICH. Okay. Well, you know, I think what would be helpful for our representatives of industry here is if you remember that it takes a cooperative relationship, I mean in the government we've had many hearings in this Committee, and myself as a Ranking Member of the Subcommittee, have heard testimony from government officials who we're holding accountable. And the Chair certainly joins us in that. We hold the government officials accountable for what the government has to do to make its systems work. But we're talking about the private sector here, and you wouldn't want to hold the Vice President accountable for what the private sector fails to do, would you?

Mr. BEACH. No.

Mr. KUCINICH. That's good to know. And I think everyone in America ought to know that, that the private sector has responsibilities here to the American people. We just heard the private sector representatives say that they may not be able to—they don't

really have a solution to those Americans who are not currently Y2K compliant with all their electronic equipment. And Y2K compliance takes care of itself with later model electronic equipment. Now with respect to the private sector, government has a responsibility I think to try to lead the way, I read a lot of testimony here about consumer responsibility. I wish that I would have heard a little more testimony about industry responsibility since, and I'd like somebody to comment, I think it was the Merrill Lynch report that suggested to utility investors that they ought to be real careful about investing in utility stocks because of some of the major utilities having some Y2K problems. Now, can't we have more discussion about this since we have the private sector here to talk about this instead of just suggesting—and, again, Dixville Notch is not that far from Washington, but I'm really thinking more about Wall Street; I'm thinking about New York City, Chicago, places that have some synergy with investment capital, and what's the private sector doing here? Government has a responsibility; we know that. What's the private sector doing? I'd be just delighted to—given the good grace of The Chair—to hear some responses on the responsibility of the private sector.

Mr. BEACH. I will comment on an industry that I'm familiar, testified before Chairman Bennett's Committee 2 months ago on this telecommunications industry, and the point of view we shared with that Committee was this: that industry is extremely competitive—the local telephone companies, the wireless, the long distance companies—and if they're not all working together to solve the Year 2000 problem, making a voice or a data call come January might not happen, and there could be a cascading of incredible events that would go from that.

I'm not prepared to comment in depth on the utility industry, but the interconnectedness aspect—we did a pain index at CIO Magazine, and it's based on the four states of problems that could happen with Year 2000. One of them was annoyances which is the highest probability; second was business disruptive problems that are defined as those that have a business not operate within a 24-hour period; business critical being those that after 24 hours the business is still not up, and I think the industry we're talking about here, the utility or telecommunications or others, and the House has looked at this—are what we call catastrophic, and those that are problems that can cause social economic harm, and the closer I get to looking at the Year 2000 challenge, the more concerned I am by its enormity and the fact that no one can come before this Committee or Committees or any committee in this country or, as Chairman Horn was saying earlier, in any country and say this problem is going to be solved. It's not, and we're all responsible.

And, I'd just like to lastly comment that consumers are spreading that blame around. They're not pointing to one group. When we asked them that question in the survey that's in the testimony, they spread it around fairly well, and though I applaud this effort, I think it puts too much onus on the consumers, and I've been computing since 1981, and if I went home tonight and downloaded the necessary patches from the Internet and then the patch software must be copied onto a floppy disk that is inserted back into the

computer the next time the computer is turned on, I might do it wrong, and who's to blame?

Mr. KUCINICH. That's a good—Madam Chairwoman, I appreciate the time that you've extended, and the gentleman raised a point about education and about responsibility in all sectors, and I appreciate it. Thank you.

Chairwoman MORELLA. I appreciate his mentioning it, because this is really a tool that begins to educate the public. Put together as, you know, through sort of a partnership. But mention was made—I think Mr. Wyatt talked about the fact that he was at a hearing that was done on it. I did one last year; I've done several of them, and we have advised all Members of Congress in their Districts to have some kind of a hearing, a briefing, a town meeting of some sort where they bring in people from state government, local government, the private industry to discuss the situation and the status of where we are.

Incidentally, Mr. Kucinich, we did—the Technology Subcommittee did, some time ago, have a hearing on public utilities, and we looked particularly at the power grids and Pepco found that a lot of the rural areas were having particular difficulty in working out a contingency plan. So, now it's my pleasure to recognize the gentleman from Virginia.

Mr. DAVIS. Yes, thank you. Mr. Beach, I'm intrigued by the article about the Vice President's date being January 1, 2000, because, in point of fact, if things don't work and function well at the governmental level and people are mad, that's who they blame; that's who they take it out on. If they don't like what the consumer groups are doing—if their VCR doesn't work or their toaster isn't working or their thermostat, they can sue you. You don't have, at this point, safe harbors—in a couple of States I think—but you don't have it on a national plain; you're driven by the bottom line, so you have an added incentive to work, and the reality is the Federal Government's been late to come to the table on this. Until Mr. Koskinen came on board, you really didn't have the focus at the Executive Branch level that you needed, and we are way behind, and the biggest problem has been in terms of—the estimates keep going up in terms what it's going to cost. We're finding out we can't get the good people, because we can't compete with industry and we've late behind—to arrive at this. We can fault you all we want—and I think there's faults could be—a lot of people are going to get blamed when things go wrong, but the private sector, from my observation, is way ahead of the public sector on this, because you're driven by the bottom line; you have much greater liability than we do, and you're out there and the key people, you've got them hired, and we're still fiddling around deciding what's it's going to cost and getting agencies to wake up to it.

But let me ask you a question: Are manufacturers now using only Y2K compliant embedded chips in their products? Is that the rule now?

Mr. SHAPIRO. That's my understanding.

Mr. DAVIS. How long has that been——

Mr. SHAPIRO. For just the reason you stated, Congressman Davis, the reality is that when every manufacturer, when they put their name on their product, they stand behind it in many, many

different ways. Because there's so much invested in that brand name, and sometimes they refund and accept returns on products even when the law or the courts don't require them to, because they invest literally hundreds of millions of dollars in preserving their reputation.

In terms of how long they've been using Y2K compliant products, from a consumer electronics point of view, it's been very, very long. As I said, the——

Mr. DAVIS. Let me just say, the Federal Government last year was spending tens of millions of dollars on systems in federal agencies that weren't Y2K compliant. So, to compare where the private sector has been v. government, I think they certainly has some deficiencies—I think you pointed them out ably today—but you're way ahead of where the government is, and the state and local governments even more. I'm sorry, go ahead.

Mr. SHAPIRO. Well, I'm just talking about consumer electronics products rather than some other, perhaps, more sophisticated electronics products, but certainly there is sensitivity to the issue, and most products just don't have the problem, and some companies have been very responsible. I point to Casio's Website. Casio makes a very clear declaration that they do not have a Y2K problem, that despite the fact they're dealing with time—Casio watches, is what they sell—they're very sensitive to how time works, and they understand the Year 2000 is going to come around, and they're prepared for it. So, their watches will work, and they do have date and time functions. So, they're guaranteeing their products.

Mr. DAVIS. Okay. Mr. Holleyman? Anybody else want to comment on that?

Mr. HOLLEYMAN. Well, I guess if I—was an embedded chip issue and just sort of more to personal computer systems generally. The reason I think we have so much stress that there is a shared responsibility among consumers and the software manufacturers and the hardware manufacturers is that as a general rule there is no one company or government entity who knows what the configuration is of a personal computer in each home in the country. The consumers have mixed and matched those components, and so the first question needs to be asked by the consumer to ensure that each of their components in their system is compliant, and then by contacting those manufacturers—in many instances this manufacturer is contacting their consumers who sent back in registrations—we can find a solution to this.

Mr. DAVIS. And consumers will just be unforgiving on these issues. There's a whole different product line shopping around like—I'm sure you know, if your reputation is gone in this business, it takes a while to recover it. At the government level, we're a monopoly, you're going to blame the politicians.

Mr. HOLLEYMAN. Customer satisfaction is a huge part of the reason why companies are acting to try to solve these problems.

Mr. DAVIS. Mr. Beach, your survey was conducted in May?

Mr. BEACH. Yes.

Mr. DAVIS. Have you done any—had a chance to follow up on the results, and do you think the consumer awareness might have changed in that time period and consumer confidence in the marketplace may be changing?

Mr. BEACH. We plan to follow up on the survey in January and share the results with this Committee. I'd like to follow up on your comments earlier about the government, and the key date is 188 days from now. And what that is, is March 31st, and I have a lot of respect for John Koskinen and the work that he's doing, but that is the date by the Executive Order in early February that said the Federal Government will be Y2K compliant by that date. It will be interesting to see if that happens.

Mr. DAVIS. Well, that's laughable. I mean, it's not going to be compliant. The key is to focus on the key areas where you can do real harm and try to make sure that those are mocked up. There's going to be little glitches going on for years, aren't there?

Mr. BEACH. I suspect so.

Mr. DAVIS. Yes, I think, Mr. Koskinen—you brought him in with the bases loaded, nobody out, and three and zero count and try to hope we get the side out. He's a very capable man. I think he's working hard in the committee and the corporator are trying to work hard with him, but it's difficult to get a handle under those situations, and it's probably mixed throughout the commercial world too. I mean, I think you have some companies that are ahead of others. Certainly, state and local governments who the Federal Government communicates with, there are going to be glitches there, and, at that point, taxpayers aren't going to be sure who to blame. They are just going to know that things aren't working correctly. Internationally, flights and those kinds of things, it's scary to think what could happen.

Mr. Hyatt, you've discussed the need for leadership from the Administration, and, Ms. O'Riley, you stated that a reasonable course of action is for the Administration to inform the public on the Y2K issue. Do you have any specific actions that ought to be taken to better inform and prepare the public, a national strategy outside of just sharing information? It seems the initiative was a very modest initiative coming forward and that, from what I gleaned, that maybe more could be done.

Ms. O'RILEY. Well, I think what's happening now is there are several hundred groups that I'm aware of in this country that are actively working to prepare their neighborhoods and communities. What's lacking is support for them by the Administration, by their local officials, by all the branches of government. They're being stonewalled by their own government, by the agencies and businesses in their communities to go forward with preparedness activities, partly because there is still disagreement as to whether or not the Year 2000 is a problem, and there is no one coming forward and providing leadership on this issue.

So, what needs to be done, what the Administration can do or Congress and Senate can do is say, "Yes, this is a problem; this is what we need to do. We need to pay attention to this. These are some of the implications, some of the ramifications." We need to have a very frank and open public discussion about Year 2000, because there's still too many people out there who are thinking that it's not a problem, because they heard a person over here or a Congressman or a Senator over here say that, "Well, it's looking good. It looks like we'll get everything fixed by 1999." And that's not being supportive of the grassroots efforts that are occurring, and,

of course, many of the businesses are still saying, "Oh, well, it's not a problem. Things will be compliant."

But, when we're talking about consumers, we have to understand that there is no single definition of compliance. Compliance is whatever a business wants it to mean. So, when you talk about some responsibility coming back to the consumer, what you're saying is they, somehow, magically, have to know the right questions to ask in order to find out if a device that they're buying is compliant.

And the way that it's being presented to the consumer is ambiguous. I mean, one of the things here in this *PC* magazine, they did a spread of compliance and whether something's compliant, and one of the phrases that's often used is that "it's Year 2000 ready," and the consumer thinks that that means that it's compliant, but what it really means is that there still needs to be some action done on the part of the consumer to make sure that it works.

So, we need to have a standard definition of compliance that's understandable to all consumers and that they don't need to be technicians in order to find out if a device that they're buying is going to work.

Mr. DAVIS. But that should be industry, not a government-imposed standard, shouldn't it?

Ms. O'RILEY. I'm afraid that the government is going to have to lead on this.

Mr. HYATT. You know, there's a verse in the Bible that says that "if a trumpet sounds an uncertain sound, then how shall the people prepare themselves for battle?" And I think that part of the problem we've got right now, as Paloma was saying, we've got a number of people who are kind of giving this cautious optimism that doesn't really cause anyone to take any action at all. It's just sort of this hope, usually not grounded in fact, that this is all going to work out and turn out in the end. And I think for the consumer, the point of absolute certainty is never going to come. It's certainly not going to come for me or for the people that I talk to on a weekly basis.

And, so what that really means is that what prudent people must do is contingency plan and emergency preparedness just like if we knew there was an earthquake coming or if we knew there was a hurricane coming, it would be prudent to prepare for that. And, so I think that what the Administration could be doing is help clarify the message, so that we don't have this ambiguity, so that people are lulled back to sleep to do nothing. I think the greatest risk to the American consumer is the thought or the belief that somebody else is working on this, and there's nothing for them to do, and that is going to prove catastrophic if, in fact, we get to January 1, 2000, and we've not remediated enough of our code to avoid disruptions.

Mr. DAVIS. Thank you very much. I yield back.

Mr. GUTKNECHT [presiding]. The gentleman's time has expired which leads me to my time, and I want to thank Chairwoman Morella for holding these hearings. We had our first of these hearings in the spring of 1996. This represents the 10th hearing we've had on this subject, and it's interesting, the interest in this subject has gone up, virtually, at every single hearing, and I just want to

say that I agree with many of the points that have been raised here. In fact, it's interesting, Mr. Hyatt, that at one of the hearings I said—and I think it was picked up on some of the news accounts—that in many respects this is like, potentially, a hurricane or an earthquake or some other catastrophe with one exception: We know precisely when it's going to hit and right down to the second. And I agree with the comments of Mr. Davis that the government has really been behind the eight ball on this. I mean, we have been slow, and I remind some people that if you look at when we first started sounding the horns, if you will, about this potential disaster and when it's actually going to arrive, we actually won World War II in less time than that. And, so it is frustrating from this perspective as someone who is finally learning how to use a mouse—I'm computer literate but barely—that there has been an awful lot of hand wringing and so forth but not a whole lot of action.

One of my concerns, serving also on the Budget Committee, is now that the Administration is coming in and asking for an additional $4 billion—I believe is what the request was for; I'm not certain what we'll ultimately appropriate in emergency appropriations—but that's an enormous amount of money; even here in Washington, that's an enormous amount of money.

I want to follow up on one other point—I'm sorry, I'm spending more time talking; I wanted to get some questions here—but I do agree, and I don't know how we can get more of our colleagues—and, perhaps, Mr. Ehlers, Dr. Ehlers, we can put out a joint letter to some of our colleagues encouraging them to have field hearings in their Districts, and we've already talked to my staff about doing that, because my experience has been, particularly among people who have some understanding of this, they really fold into two groups: one groups says, "You know, there's smart guys working in garages somewhere that are going to figure this thing out, and I'm not too worried about it." Then there are people who spend a lot of time on the Internet, and they say, "This is—the power grid is going to shut down; food and water distribution systems are going to break down. Basics, things that people count on are not going to happen."

And they are almost in a panic. I talked to some of them at county fairs and so forth, and they sort of get their finger in my chest and say, "Do you know what's going to happen with this thing?" I'm not certain who's right about this, but I think we have to—I would agree with Mr. Beach that I think we have to sort of prepare for the worst.

I just want to find out from you, as panelists, how many of you really—I don't know how to frame the question—how many of you really think it is going to be the worst? Mr. Holleyman?

Mr. HOLLEYMAN. I don't know. I don't think we know. I think what is useful, though, about the scenarios which show the potential problem is that it does cause people to know about it, to ask questions, and to figure out what they can do about it. So, I don't think we know what the answer is, but I think that is useful information to get people to act.

Mr. GUTKNECHT. Mr. Shapiro?

Mr. SHAPIRO. Personally, I think the end of the century, certainly the end of the millennium, brings about a lot of anxieties, a transi-

tional period, which if this was just an ordinary date, maybe there wouldn't be concerns this heightened. I don't think the problem in the United States will be as severe as the problem in other countries that have probably focused a lot less on their infrastructure, have all their systems around. I think the focus in the United States is rather intense, and I think there's three problems: I think there's a potential problem leading up to December 31, 1999, which is potentially a panic problem which can affect financial markets and other things—I'm not sure I share the views of my colleagues down here—there's the potential problems that can occur on the time itself, and, perhaps, a third problem, which I just can't figure out, there are several hundred thousand people working on this in the United States; what happens to them after January 1, 2000?

Mr. GUTKNECHT. Mr. Beach?

Mr. BEACH. I shared with Mr. Shapiro earlier that those people, we don't need H1B visas anymore; they could all become IT workers. But the closer I get to this problem, the more I'm convinced it's going to happen. I called it digital tsunami. We know it's going to hit our shores. Most of the problems will be of the annoyance nature, but the probability aspect of it has convinced me that there are going to be global catastrophic events. No one knows where they're going to happen. The only thing we can do as a country and a global society is raise the awareness flag to the highest pole we can. We cannot allow one in four Americans to take money out of their bank and put it under a mattress. So, we have to bring this issue to the forefront in the best way we can, but I am convinced there will be catastrophic problems. Most of the problems will be of an annoyance nature.

Mr. GUTKNECHT. But doesn't that lead to the—I mean, we don't want people to be nonchalant about it, but, on the other hand, we don't want to panic people, and that's sort of the problem we have had is how do you explain to people this could be very serious; we are working on it; you need to be aware of it. I mean, there is a fine balance we have to strike, isn't there?

Mr. BEACH. Absolutely.

Mr. GUTKNECHT. Okay. Ms. O'Riley.

Ms. O'RILEY. Yes, there's two things: on the panic issue, we've been—Cassandra has been talking to people for about 1.5 years now, thousands of people all across the world. We haven't seen anyone yet panic over the Year 2000, but what they do want is really good, solid information from which they can prepare. Now, I figure, if we cannot yet accurately predict the impact of a hurricane, then there's no way we're going to be able to predict the impact of Y2K, but we can do is take the same preparedness steps that we can do for hurricanes. We know that there's a possibility of critical infrastructure failure; we know that there's a possibility of emergency service failures. These are things that we can prepare for in advance, and we don't need to panic; we just need to address it from the standpoint of taking a precaution, and if we do that, then we will soften whatever Year 2000 problems occur.

Mr. GUTKNECHT. Mr. Hyatt?

Mr. HYATT. I would agree with Ms. O'Riley that in my book I talk about three scenarios: a brown-out scenario, a black-out scenario, and meltdown scenario. I personally think it's going to be

somewhere between the brown-out and the black-out, but it's contingent upon three things at least: one is how much work gets done between now and January 1, 2000, particularly in the electrical power utility industry. There's nothing that we're more fundamentally dependent upon in this country than electricity, and if we lose electricity, then we lose virtually everything else including the ability to continue working on the computers after January 1, 2000, and I'm not encouraged, frankly, by what I've heard in electrical testimony or utility industry testimony.

The second thing is I think the variable is contingency planning. The point of absolute certainty is never going to come for the consumer. I'm not optimistic that we're going to have reports that come out that can be independently verified and audited to the assurance of consumers, and, so, that in the absence of that, the only reasonable, prudent thing to do is to do emergency preparedness.

And the third thing that I think is a variable is the public reaction to this whole thing, because that could take on a life of its own and could be a separate thing all by itself. But, again, it's my contention that in the presence of knowledge and a reasonable plan and with leadership, we can avoid the panic and avoid the kind of irrational behavior that we all want to avoid.

Mr. GUTKNECHT. My time is about expired, but I also want to ask you about—you know, a number of people have been in here and say, "Well, we're going to run a test at certain times." How well will those tests work, and will they be conclusive? How do you test this in advance? I don't understand how you test it. Can anybody help me?

Ms. O'RILEY. Well, from the information we've been getting from people who are actually doing tests, the biggest problem for them is they are not able to test a live system. They're having to do it on a test bed, so the results they're getting are indicative of what could happen, but they still are not really solid results. A good example is the electric grid. There is no way that we can actually test the electric grid prior to Year 2000; that's the biggest hurdle.

Mr. BEACH. As you're aware, Wall Street did a test sometime earlier this year, and the recollection I have from reading in the paper, the results were 90 percent of the system worked. Now, this was a fairly highly visible test and to have 10 percent not work concerns me.

Mr. GUTKNECHT. Especially if it's your 10 percent.

Mr. BEACH. Right.

[Laughter.]

The other problem is this—and Capers Jones might have testified before this Committee—that when you send a worker in—to fix a Year 2000 problem is not particularly difficult; you just have to remediate the code if it's not an embedded chip problem. His theory is one in four lines of remediated code are in themselves going to have a problem, so just because you remediated the code and corrected it, doesn't necessarily mean it's going to work.

Mr. GUTKNECHT. Thank you, I think. I'm going to yield now to the gentleman from Michigan who really is a rocket scientist, Dr. Ehlers, who does understand more of this than most of us mere mortals. Dr. Ehlers.

Mr. EHLERS. Well, thank you, Mr. Chairman. I'm not sure I understand any more than the rest of you, but I just want to offer a few comments first, a few questions.

And, Mr. Hyatt, I was interested in your quotation from the Bible; I was also reminded of Solomon's comment about "there's a time for everything; a time to sow, a time to reap," so it's too bad he couldn't warn us about Y2K while he was talking about time issues. But also, thinking in Biblical terms, most people fail to recognize the role of a prophet; they tend to think a prophet's job is to foretell the future, and that's not the function of a prophet. The function of a prophet is to tell people what will go wrong if they don't change their behavior, and, from that standpoint, I think your book is a good effort to warn the people what will go wrong if we don't correct it, and I think all these shouts and prophecies of doom are important to wake up the right people and hope that they react or change their systems or behavior, so that we do correct the problem

I'm an eternal optimist, so I happen to think the problems aren't going to be quite as bad as everyone says they are provided people listen to the warnings and take action, but we are inevitably going to have problems, and I think a lot of the problems will not arise so much from computers, per se; I think for the average consumer the biggest problems are going to be the embedded chips, and I was interested in your comments, Mr. Shapiro—I'm sorry I was so late, but I had a whole series of meetings today—but as I came in you were talking about how all manufacturers will stand behind their products, and my question is, will every microwave manufacturer, every VCR manufacturer, every TV manufacturer stand behind their product and replace any embedded chips that turn out to be not Y2K compliant? Are they really going to do that?

Mr. SHAPIRO. Well, taking those products separately, I don't personally understand how there's a problem with TV sets, because they do not have calendar year functions for the most part. VCRs, there are some problems, and the only problems that were identified were prior to 1987, and not that many were sold, and there are just a couple of models from a couple of manufacturers. In terms of VCRs today being sold, I have been assured by those who communicated to me for our membership, they do not see an embedded chip or any problem with the VCRs that are being sold today. In terms of the microwave ovens, although one of our Website or two where they talk about that, and they don't see a microwave oven problem, we have not done the research. We actually don't feel our representation of the industry is consumer electronics including microwave ovens, but the Association of Home Appliance Manufacturers I'm sure would be pleased to respond to that one.

But maybe I didn't answer your question. Will they back it up if there's a problem? To me, the law is very clear; when you sell a product, a consumer product, you have an obligation to make sure the product works under the express warranty or the implied warranty of merchantability. Either way, if it doesn't work, you're responsible, and manufacturers, I believe, will stand behind those products.

Mr. EHLERS. Even if it's an older model?

Mr. SHAPIRO. That's a different question. There comes a point—and I don't think it's well settled in the law—at which a person who brings in, for example, a 50-year old TV set and says it doesn't work, that consumer really doesn't have a case. If it's 14 years old and it's just one feature, for example, future time shifting, that will be an issue. I honestly do not know how retailers and manufacturers will respond to that. I do know that both retailers and manufacturers are incredibly sensitive to their reputation and their name, and they accept products today on returns which they do not have to accept back under the law, and their return policies are very generous because of their reputation and their competitiveness with each other.

Mr. EHLERS. Well, that's very reassuring, and I appreciate the fact that this will be in the record, so we can remind you of it on January 1, the Year 2000.

[Laughter.]

I don't share your optimism. I think there are a lot of embedded chips out there that are not compliant which manufacturers think are. I agree with your statement that none are being sold now; I suspect everyone has checked that out. I think there are a lot of embedded chips that neither the manufacturers nor the sellers of the chip knew that they were not Year 2000 compliant at the time they sold them. I could name other appliances or even automobiles.

I told all my constituents don't drive on New Year's Eve on December 31, 1999, and I told them not just because their car might stop because the chips have failed, but I'm striving to have the least of drunk driving arrests ever on that particular New Year's Eve, and if I can induce them all to stay home, that's wonderful. But be that as it may, I really think there's more of a problem there than we think, and I'm not confident that manufacturers are going to go to the expense of replacing all of the embedded chips that happen to be non-compliant.

I have no further questions, Mr. Chairman. I apologize I couldn't attend enough of this to ask other questions.

Mr. GUTKNECHT. Thank you Vern. I really don't have any further questions either, and the Chairwoman is indisposed right now. Is she going to come back? She wanted to ask a couple of more questions. We'll wait just a minute if you don't mind.

[Pause.]

Mr. GUTKNECHT. If she doesn't come back and there are no further questions, I will adjourn and thank you all. In advance, though, let me thank you all for coming. These have been very, very instructive—and she is back.

Chairwoman MORELLA [presiding]. I just want to ask a couple of more questions, and thank you; you've been very patient, and hasn't the vice-Chair been great? And I know Mr. Ehlers who chaired the whole Science Task Force and came out with the science policy did a really terrific job.

Okay, going to just a couple of the questions that I wanted to ask you. Mr. Holleyman, in your testimony, you discuss the possibility that while checking their computer systems, consumers might discover that they're using illegal copies of software. Besides the obvious fact that this is wrong, what practical implications for the con-

sumer and for the industry does this illegal use of intellectual property create?

Mr. HOLLEYMAN. It's really two things: one, the federal copyright law has very steep penalties that can be imposed against people who are using unauthorized copies of software, but in the context of Year 2K, I think it is very important to recognize that for software publishers who are providing fixes, who are providing upgrades to their customers to ensure Y2K readiness of products, that they don't have any information about the people who are using the products, the software, illegally. So, the people who are the illegal customers—and we estimate the 27 percent of all the software in use in the United States today is pirated, is illegal. So, all of those people will not be getting the type of contacts that the legal registered users would be getting. So, it's a copyright compliance issue, and it's a consumer information issue.

Chairwoman MORELLA. And picking up on that too, it was last month *The Economist,* I understand, reported on the Y2K readiness of the People's Republic of China, and in the report it was stated that more than 90 percent of the foreign software that's used in China is copied illegally and is never paid for, and it goes on to say that such users can hardly approach the producers for help with their problem. Am I correct to assume that American companies publish the majority of foreign software in China?

Mr. HOLLEYMAN. That is correct. U.S. PC software companies publish nearly three-fourths of all the software in use in the world including in markets like China, and, yes, it is a problem that is in the United States, but it's a problem that magnified in foreign markets, and, globally, 4 out of all 10 business applications in use are pirated. So, in terms of Y2K, it is a real issue.

Chairwoman MORELLA. Happening in other part of the world too?

Mr. HOLLEYMAN. Absolutely. In Asia, generally, rates of piracy are the highest of any country, of any region in the world. Piracy rates have been coming down, but they're still way too high, and they're still, again, very much a problem in this country.

Chairwoman MORELLA. I guess I would ask this of anyone who would like to answer: when consumers walk into a retail store, what are some of the questions that they should be asking? How much preparation about Y2K should consumers make before they walk into a store? And is it reasonable to rely on the Y2K readiness of the salespeople?

Ms. O'RILEY. I think I'd like to——

Chairwoman MORELLA. And I might say that Ben Wu [Subcommittee staff] just said it's the statements that they make; I don't mean the people in sales, the statements.

Ms. O'RILEY. There's a lot of confusion on the part of the consumer right now. We've had several people walk into stores and want to know if something is compliant, and according to whoever they talk to, it may or may not be, but, unfortunately, it's not whether or not a device is compliant, it's what is the definition of that compliance? It may be compliant according to that company's definition, and that's the problem; there is no standard definition that consumers can rely on.

Plus the phrases themselves are misleading. I mean, we often hear about Year 2000-ready software or devices, but ready does not mean compliant. It often means that a consumer has to do an additional thing, do an additional step to in order to make that thing work correctly.

And, also, sometimes the compliance definitions are so narrow that if you do what you normally do with software, for instance, in the normal course of events, that you may have just suddenly found yourself outside the warranty area of that compliance.

So, there's a lot of disclosure that needs to be done. It needs to be a lot more forthcoming, and most consumers don't know the questions to ask; they're not technical. I mean, my parents couldn't walk in and ask those kinds of questions. They are relying on what the manufacturers are telling them.

Mr. SHAPIRO. For the products being sold today, I don't think there's much of a problem unless there's some older software being sold as part of the computer. I don't think consumers have to ask those types of questions, in my opinion, if they are buying from a reputable store, and if they are buying a product with a brand on it that they know and recognize and trust. If they have some outdated inventory somewhere or if they're buying a product whose name they've never heard of before, there may be a risk that it is, perhaps, produced elsewhere in the world using very, very old chips. That is the same of type of risk you always take when you buy a product whose name you don't know. That's the value of a brand. That's why you go into McDonald's rather than Joe's local hamburger joint. You are getting a reputation you can trust when you're traveling——

[Laughter.]

[continuing]. —not in your District.

Mr. HYATT. Just one comment, and I'm hoping some of my colleagues have more updated information, but when I wrote my book in the fall of 1997, one of the statistics I quoted was from *Computer Weekly* magazine, and according to the survey they did at that time, 50 percent of all the personal computer hardware manufacturers were shipping hardware that would not operate correctly in the next century; that was in the fall of 1997, 1 year ago. I hope that's improved, but I've noticed in flipping through a current issue of *PC* magazine that I couldn't find one single computer manufacturer that was advertising their hardware as Y2K compliant or ready or any other term you want to use as a feature, and I would think that if it were, unless there's something I'm missing legally, that that would be a wonderful feature to tout.

Chairwoman MORELLA. You've probably seen this *PC* magazine which has its cover story, "The Year 2000 Prices: What You Need to Do to Protect Yourself from the Millennium Bug."

You may want to also comment on the need for standards that you brought up, because I think maybe in the next session we may be looking at that.

Mr. HOLLEYMAN. Madam Chairwoman, may I just say that in terms of buying a personal computer for a consumer, they have one question they should ask, but they should ask it four times, and the question in terms of Y2K readiness or compliance, they should say, "Is the hardware, the computer itself, Y2K ready?" They

should say, "Is the operating system on that computer Y2K ready? Is the software that's being used, the applications, are they all Y2K ready? And are any peripherals, the printers, scanners, other things, are they Y2K ready?" So, there's one question that needs to be asked four times.

Chairwoman MORELLA. Mr. Beach?

Mr. BEACH. I would just add the word functional to Y2K.

Chairwoman MORELLA. Do you find that there is a need for standards, delineation of standards? Some of you would prefer not to comment.

Mr. HYATT. Well, I think it becomes pretty simple, and that is that we want the things that we're using now to operate in the same way after January 1, 2000. So, you can define it in a hundred different ways, but the question is, will it have—as you were saying, Mr. Beach—is it functional, will it continue to function in a similar manner after January the 1, 2000?

Mr. BEACH. I would encourage—listening to Mr. Shapiro—that if you go into a retail store an electronics device, a new device, that the warranty—they might already, I haven't read a warranty recently—be extended to say that this product is Year 2000 functional. I think that would go a long way to having consumers feel comfortable about making purchases between now and——

Chairwoman MORELLA. There was some talk about doing a seal, like the Good Housekeeping Seal of Approval, and ITAA had a methodology for doing some kind of testing, and it sounds like it has some merit.

Just a final question: to what extent are retailers concerned that consumers will return software or electronic products that have Y2K problems, and to what extent are retailers working with software publishers and electronic product manufacturers to handle anticipated returns? Anyone want to take that one on?

Mr. SHAPIRO. We had a conference last week in Chicago attended by senior level executives from retailers and from suppliers; not enough software providers for the most part, and one of the issues was the question of Y2K compliance, and I think that it's fair to say they're engaged in an active and constructive dialogue between each other focusing on the problem. They're talking to each other which is very helpful and which is the type of message, Madam Chairwoman, that you are trying to get across, and there was tremendous—even though the program was at the end of the day, there was tremendous interest in it, and our representative from the Federal Trade Commission talked about responsibilities of retailers and manufacturers, and I thought there was—instead of fingerpointing—I thought there was an effort to recognize a joint responsibility and try to attack the problem of any consumer confusion collegially.

Ms. O'RILEY. If I may add, the whole aspect of the products that are being discussed are really those products that are fairly trivial. I mean, if they don't function, it will be convenient. But I think what we really need to focus on is what about those products that could jeopardize the public health and safety if they do not function correctly? And those software manufacturers and other types of medical device manufacturers are being a little more forthcoming about compliance. The medical device manufacturers are still not

giving the information to the consumers that is absolutely essential to make sure that those pieces of equipment will function correctly, and the type of information we're getting from the medical device manufacturers is very conflicting and sometimes downright in error, because they didn't do their testing properly.

Chairwoman MORELLA. There was just an article on that yesterday in our local paper. Would not the same questions, though—that four-pronged question series would require a response that would indicate compliance?

Ms. O'RILEY. Well, unfortunately, we're asking a lot of the consumer. I mean, we have friends with an 8-year old with a pacemaker. His parents and certainly not the child are not that literate. They don't know what questions to ask, and even if they ask those questions, there are so many ways that the answers can be couched that it still may not give them the right information, and when it comes to health and safety, we need to err on the side of caution. We need to believe that those devices will not function correctly unless proven otherwise, and there is no push to make sure that information gets to the consumer.

Mr. HYATT. Perhaps, I'm abnormally cynical, if I asked the question if I went to buy a computer, the four questions that you suggested which are very good, the one question four different ways, I would never take the word of the clerk that was trying to sell me the piece of equipment, because, generally speaking, I found that information to be very unreliable, so I would want it in writing, and I would want it to be official, and then we get into the problem, once again, of legal language that is very difficult to understand, so when you get to the end of it—kind of like the testimony we heard in Tennessee earlier this week from some infrastructure providers—at the end, you say, "What have they really promised me? Is it really going to work correctly?" So, we need something in plain English that the consumer can understand.

Chairwoman MORELLA. Well, if you can help us with that, I hope you will try to do so. I would like to be able to submit a few more questions to you and not hold you up any longer, but, Mr. Holleyman, there is one—I got a letter from someone in the community dealing with software, and maybe I might ask you, this has to do with potential problems that could occur on September 9, 1999, with some computer languages that use 99 as a code to order summary actions after they appear. It's also kind of like called the 99 jinx. Would you like to comment on that? Have I given you enough information on it—9999?

Mr. HOLLEYMAN. Actually, if I could actually ask your indulgence to comment on that for the record, I would feel more comfortable.

Chairwoman MORELLA. Oh, that would be good.

Mr. HOLLEYMAN. I'd be happy to do so.

Chairwoman MORELLA. I wanted to thank you very much for being so patient while we went out to vote, and I want to thank you very much for responding to our questions, for the excellent testimony, for being here to address us. So, my thanks to Mr. Holleyman, Mr. Shapiro, Mr. Beach, Ms O'Riley, and Mr. Hyatt. Thank you, and the Committee is now adjourned.

[Whereupon, at 4:34 p.m., the hearing was adjourned.]