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## THE YEAR 2000 PROBLEM

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Chairman of the President's Council on Year 2000 Conversion*

*The head of the U.S. government's effort to deal with the year 2000 computer problem says the major obstacle to overcome is "insufficient awareness" about the problem "among government leaders, journalists, business executives, and the general public" around the world. He fears that "inactivity and lack of awareness could lead to fulfillment of some worst-case scenarios." But he stresses that "by taking action now we can minimize the disruptions and, hopefully, effect a seamless transition to the year 2000."*

The world currently faces one of the great challenges of the Information Age. As we head toward a new millennium, many computer systems, as well as the computer chips embedded in everything from personal computers to household appliances and sophisticated manufacturing equipment, are set to shift backwards in time.

The problem is that many older computer systems and microprocessors, as computer chips are known, use only the last two digits of a year to keep track of the date. So, when the year 2000 arrives, those chips may recognize 00 as the year 1900, not 2000. The resulting malfunctions could cause serious disruptions of power grids, water treatment plants, financial networks, telecommunications systems, and air traffic control systems worldwide. In an increasingly wired world with a global economy, computer networks are only as strong as their weakest link. While each nation is likely to experience its own particular system problems, in a very real sense we are all in this together.

Why did software designers make such an obvious mistake? Thirty years ago computer memory was in much shorter supply than at present, so computer programmers relied on shortcuts like the two-digit year to save memory. Their assumption was that the programs they designed would be outmoded and replaced by new software long before the year 2000. In practice, however, many large, complicated computer systems such as those used by banks, insurance companies, or stock brokerage firms have evolved over time, with the latest software added onto existing systems. Consequently, any organization that operates large-scale, interconnected computer systems will have

to check millions of lines of computer code to determine how dates are handled, then rewrite software to correct the problem, then run these applications to see how they work, and then check each program's interface with the internal and external applications it uses.

The technological fix is not difficult, but because of the sheer scale of the year 2000 problems, we face an enormous organizational and management challenge. Just to cite one example — there is a limited labor pool of those qualified to fix the problem, programmers skilled in computer languages that may have become obsolete years ago.

To coordinate work on this problem within the U.S. government's many systems, President Clinton has formed a council of more than 30 agencies. Our first goal is to maintain basic government services — to ensure that health-care and unemployment benefits continue to be paid, that tax collections are not disrupted. The president's ambitious target is to have 100 percent of U.S. government systems "year 2000 compliant" — that is, fixed — by March 1999. The council also has working groups devoted to interacting with state and local governments on this problem and assessing private companies' efforts in 35 industrial sectors, such as transportation, telecommunications, and finances.

In addition, we are concerned about the state of year 2000 efforts in other countries since many computer systems cross national borders and, in a global economy, no nation is a digital island unto itself. We are working through international agencies to address the problem. The United Nations passed a resolution

that called on all member states to take action and report back to the General Assembly by October 1. The World Bank has held 20 regional conferences to raise awareness of this issue. The International Monetary Fund has agreed to use all its influence to encourage countries to devote resources to the problem. Secretary of State Madeleine Albright has sent a cable to U.S. embassies around the world, instructing the ambassador to make inquiries of each host country about the level of its preparedness for the year 2000. The U.S. Information Agency heads up a working group of the President's Council whose mission is to raise awareness, act as an information gateway, and focus on contingency planning with other countries.

Unfortunately, at this point fewer than 500 days until January 1, 2000, I find that the biggest problem is still one of insufficient awareness among government leaders, journalists, business executives, and the general public in many countries. The first step is for nations and private companies to inventory all their operations involving computers and develop a plan for fixing them. A second vital step is contingency planning.

The President's Year 2000 Council has asked each U.S. government agency to develop two kinds of plans: one, what will we do if some of our computer systems don't work? The second level is outside contingency planning: what will we do if systems interconnected with our systems fail?

Year 2000-related disruptions are likely to begin before the new millennium as outmoded systems attempt to calculate or schedule future events. Precisely what will happen is difficult to predict at this point. There are a number of Internet Web sites in the United States where some experts that one would not normally think of as alarmists have predicted widespread system failures that will result in power outages, traffic problems, economic recession, and possibly, in some regions, food shortages. While I tend to be more optimistic than these doomsayers, I am concerned particularly about countries where inactivity and lack of awareness could lead to fulfillment of some worst-case scenarios. The point is that by taking action now we can minimize the disruptions and, hopefully, effect a seamless transition to the year 2000. ©