manipulation of unimagined proportions.

Once the corporate community realized the importance of the Internet to productive activity, it became inevitable that the Internet would become a closely held, regulated and controlled, commercial commodity. Business organizations may regularly rail against *the regulators*, but they actually thrive on the predictability of regulation and rely on their ability to appeal to regulators to control the excesses of their competitors. Organizations look to strong national government to provide a consistency in regulatory control that can't be duplicated by trade organizations or extra-national entities.

No Second Troy

Therefore, contrary to the utopian wisdom of most observers of the evolving information economy, we do not see a global village in the near future. Both businesses and people need nations, to both protect and project their interests in a world too diverse to apprehend. While global trade will continue to expand, it will do so between nations and between populations that clearly identify with their own nation state. As for the Internet, the increasing control of content to manipulate both consumption and ideology will soon transform the most promising communicative medium in human history into yet another mechanism of coercion and control. **c**

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A Larger Role in the Public Policy Process for User Control

ARI SCHWARTZ

PREDICTIONS of the future always remind me of a documentary film I saw in a third-grade science class. The substitute teacher introduced it as *The Year 2000* or something of the sort. It was filled with expert predictions of the technologies we could expect to enjoy at the turn of the next millennium. The idea was to inspire our imaginations so we could participate in making the future happen.

Some of the forecasts were probably accurate, though I don't remember any of them. I can, however, recall three that, to date, are off the mark:

Affordable domestic robots. The day of the robot servant would soon arrive. Meanwhile, third-graders around the world still have to make their beds and do their homework.

Disposable paper clothing. Obviously before the mainstream environmental movement, but even then seemed wasteful and impractical.

Flying cars. I think the narrator said this might not happen until later in the 21st century, so our friends, the mechanical engineers, still have some time to work out the details.

Perhaps the film did gets its message across on some subconscious level. After all, I do work at the Center for Democracy and Technology. I do dream about the role of communication technology in future societies. However, there was a more immediate lesson: Predicting technologies that may appear in my own lifetime is a futile effort.

Similarly, trying to predict the

specifics of laws 40 or 50 years from now also looks foolish. On the other hand, it is easier to predict the role regulation and technology may play 1,000 years from now than speculate about the changes in 10 years, because the focus is on general trends rather than specifics. (Also, I will not be around in 3001 to be humiliated by any prediction I make now; so buyer beware.)

Broadly speaking, regulation in a democratic society has changed little in the past 2,000 years. Regulation, in an economic sense, relies on a balance between government action (regulation) and marketplace structures (self-regulation). In a free-market democracy, we favor regulation when we believe the market has failed to address the concerns of society and the rights of its individual members. Historically, when faced with a market failure, democracies have turned to regulation, self-regulation, or some hodgepodge of the two for a remedy.

Consequently, contemporary political debates continue to play out this fundamental difference in the philosophy of how a market failure (or what one side considers a market failure) should be regulated. Some believe that few problems qualify as market failures, and those that do are best solved through self-regulation alone. Others believe the market fails all the time, and that only the government can solve them. The majority falls somewhere between these extremes.

This regulatory structure is unlikely to change dramatically in any free-market democracy over the next 1,000 years. What will

change, and has already changed, is the role of technology. It is not usually apparent, but governments often regulate with the aid of centralized technologies. Take, for example, traffic control; at the narrow intersection of two roads, a government gives notice to drivers that they must stop and yield the right of way or be in violation of the law; at larger intersections, traffic lights regulate the amount of time a driver must stop and yield.

Many other kinds of technologies, such as burglar alarms, that put individuals in control are not mandated for the protection of personal property. The design and function of the technology often dictates how it is used. In most cases, technologies put individuals in control once they've learned from the manufacturer how to use them.

BY giving control to the individual, we limit the number of potential market failures. However, there is a greater call for protections when a technology makes decisions for the individual.

As we move into a networked society with ubiquitous computing, we are certain to see new (or the exacerbation of old) market failures. In fact, we have already begun to hear arguments over how one's privacy can be guaranteed when using the Internet.

But as technologies allow and encourage greater interaction between individuals and their surroundings, these problems may become more difficult to control. A familiar example is a technology that automatically adjusts the environment of a room (temperature, humidity, lighting) depending on the preferences of the

individual entering it. This technology may give users the control necessary to allow both government and industry to create a stronger safety net with minimal intervention. However, the possibility that technologies will take control away from the individual may suggest the need for stronger baseline standards in law or greater education and industry self-regulation.

New technologies may be created with the express design purpose of trying to turn the tide by putting individuals back in control. However, these patches would not be as effective as controls built into the architecture and might still need to be buttressed through regulation.

Each new technology—from microlocation devices to broadband services—sets this regulatory balancing act in motion. Indeed, we can empower users, protect their privacy, security, freedom of expression, and consumer rights, and create a vibrant marketplace, all at the same time.

If we achieve this balance, I envision a day in the fall of 3001 when a third-grader wakes up for the first day of school; as he dresses, the embedded chip in his recyclable paper pants signals his robot butler to make his bed and the flying school bus to say he is on his way. Then again, maybe not. **c**

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