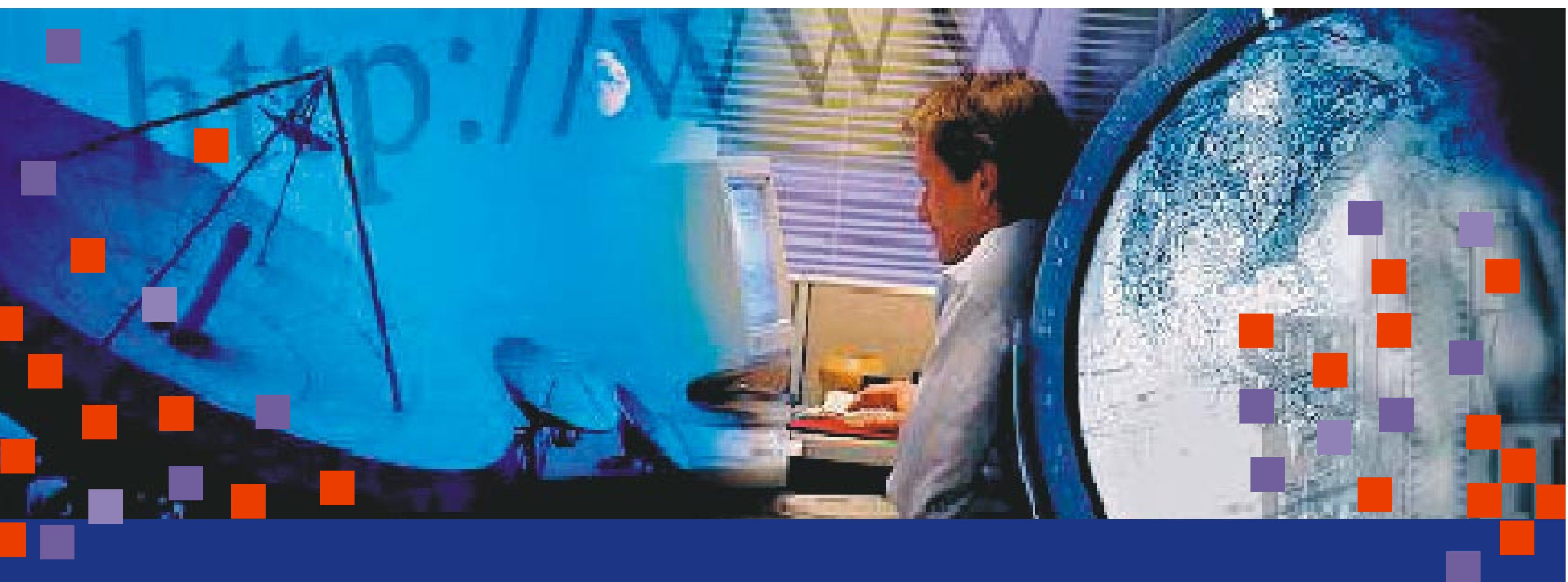
United States
Securities and Exchange Commission

Technology Roundtable

Washington, D.C.
April 14, 1998



REPORT OF PROCEEDINGS
Prepared by the
Division of Market Regulation

Securities and Exchange Commission

Technology Roundtable
April 14, 1998

Commission Participants

Arthur Levitt
Chairman

Norman Johnson
Commissioner

Laura Unger
Commissioner

Richard Lindsey
Director
Division of
Market Regulation

Barry Barbash
Director
Division of
Investment Management

Brian Lane
Director
Division of
Corporation Finance

Richard Walker
General Counsel
Office of
General Counsel

Introduction

The Securities and Exchange Commission ("Commission") convened the Technology Roundtable to explore the impact of changing technology on the securities markets and on the regulatory environment of the future. The roundtable brought a variety of participants together to consider how the traditional functions of the securities industry – communicating information about securities, analyzing and providing advice, finding and bringing together buyers and sellers, and raising capital – will be influenced by advances in technology. Most important, the roundtable permitted the participants to discuss how technological changes would affect investors.

Commission Chairman Arthur Levitt introduced the roundtable and noted that technology is changing the securities industry in ways that no one can predict with certainty. Richard Lindsey, Director of the Division of Market Regulation, moderated the discussion that followed. In the first part of the roundtable, the participants individually evaluated the ways that technology is changing the securities industry. In the second part of the roundtable, the participants held a dialogue about the implications of technological changes for securities oversight.

During the roundtable, several themes evolved from the participants' discussions:

The nature and speed of technological change in the securities industry

The participants agreed that technology would greatly affect the way that business is done, though they expressed differing views about how quickly change would come and what would be the extent of the change. Several participants further emphasized that because we are at an early stage in the process of technological change, we cannot hope to accurately predict the ways in which technological change will manifest itself.

Participants also discussed how the significance of technological change would be directly tied to the way that technology meets investors' needs. Several participants focused on the interaction between technology and the concept of trust — exploring how the impact of technology is linked to individuals' need to have trust in their modes of communications and in their relationships.

Technology's role in leveling the playing field for investors

Some of the participants noted that emerging technologies such as the Internet have permitted smaller investors to gain access to information and analytic processes that previously were the province of large investors. One participant emphasized that the Commission has an opportunity to take active steps to permit technology to level the playing field further.

Technology's new challenges for investor protection

Several participants noted that technologies such as the Internet can present new threats to investors. The Internet allows individuals to easily and broadly disseminate information to the investing public. While this offers many benefits, it also enables miscreants to spread false information or hype. That threat highlights the importance of investor education in regard to new technologies, as well as the need for improved regulatory vigilance.

Effect of technology on global regulatory issues

Several participants emphasized that regulators around the world need to develop global regulatory mechanisms, because technology is tearing down national borders. The alternative could be to force market participants to try to use technological firewalls to isolate themselves from certain markets and players, to avoid the risk of inconsistent regulation.

Technology's impact on executional skills and on advisory skills

Some participants expressed the view that although technology would have a great impact on the execution of transactions, its effect would be to reduce the importance of the execution provider. The result would be that advisory skills would become relatively more important, particularly given the overwhelming amount of information now available to investors.

The Commission's response to technological change

The participants had several ideas about how the Commission should respond to technological changes, and the problems the Commission will face.

Several participants noted that because it is impossible to anticipate where technology will take us even in the next few years, it is important for the Commission to be flexible in its regulation. One participant suggested that the Commission increasingly use pilot programs to develop regulatory structures. Another participant argued that because investors now face an overload of information, rather than a lack of information, the Commission needs to rethink the goals that underlie the regulatory structure.

Participants also suggested several particular steps the Commission should take to address technological change, such as helping to ensure that the Internet levels the playing field for investors, doing more to permit the electronic delivery of documents, and clarifying the rules regarding when the electronic delivery of information to a customer would constitute a recommendation. Finally, several participants noted that the Commission must continue its role in providing investor education and protection.

How Is Technology Changing The Securities Industry?

Barbara
Perrier-Dreyer
(OutReach Technologies)

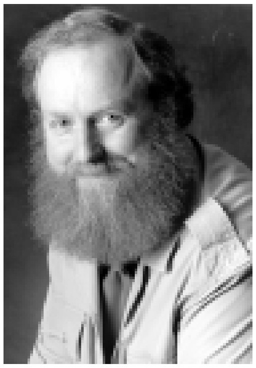
"On the Internet any firm can look enormous, research can sound credible, individuals can seem qualified, all without any real foundation." ***—*** *Barbara Perrier-Dreyer*

Barbara Perrier-Dreyer opened her remarks by discussing some of the ways that the Internet allows more opportunities for small investors, such as by enabling small investors to access information and services that traditional investment firms had previously spent large sums to obtain. She noted that the changes associated with the Internet can pose both opportunities and problems for companies. For example, the Internet potentially poses threats to companies, particularly newer companies, by permitting rumors to be posted anonymously. On the other hand, the Internet provides companies with new opportunities for gaining access to investors, such as by enabling investors to access filings on the company's web site, replay analyst calls, or communicate with the company's CEO via e-mail. Technology also has allowed wider access to issuer roadshows. The ultimate effects of some of the developments have yet to be seen. Ms. Perrier-Dreyer also emphasized the importance of the SEC's role in investor education, given the amount of information disseminated on the Internet.

William Schrader
(PSINet Inc.)

"Governments around the world will be challenged in finding a way to regulate this kind of environment given the technologies that are currently out there, and that will be invented." — *William Schrader*

William Schrader noted that the biggest challenge faced by the Commission and other regulators is the very fact that change is coming. He discussed some of the ways that that the Internet could be expected to dramatically increase its economic importance within five years — stating that 80 percent of gross domestic product in every country would flow over the Internet at some point. Mr. Schrader emphasized that governments around the world will be challenged in finding a way to regulate this environment. Although people are rightfully concerned about the loss of individualism and privacy, he believed those detriments will not be as serious as some fear, and society will be enhanced by benefits such as better education. He concluded by emphasizing that we are still early in the process of change.



Bran Ferren
(Walt Disney Imagineering)

"These kinds of changes will be difficult for us because, ultimately, as people's needs and our culture change, our institutions, our governments, must change to follow suit or they will become irrelevant." — *Bran Ferren*

Bran Ferren began by noting that we can barely anticipate the impact that new technologies will have. He explained that no technology achieves any degree of importance unless it has equally dramatic social or cultural impact, and that the technologies that have a long-term positive effect are those that add value to people's lives. These technologies will force us to enter into a time of redefinition for several concepts — community, literacy, convenience, storytelling. Perhaps most critical, we will have to continue to define the concept of trust, because the Internet will fail unless we can make it a trusted medium where people can believe in confidentiality, security, privacy and accuracy. Moreover, if government and institutions do not match the changes to people's needs and to our culture, they will become irrelevant. The changes will affect the way we think of securities, our government, and the process of how we govern ourselves. Planning for and implementing this change will be difficult, because what we hold today as truths will seem silly even ten years from now. Part of the challenge therefore is to realize that we are going through enormous change, and position ourselves for the future. He also emphasized the importance of education to meeting these opportunities.

John Reed
(Citicorp)

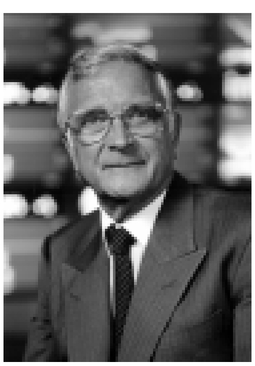
"We're going to have to have globalized standards or we're going to have to put barriers and firewalls around the technology that try to contain and insulate one market and one set of market players from the global marketplace." — *John Reed*

John Reed concurred that people's needs are not going to change, but that we are confronting a revolution in how to satisfy those needs. He explained that the relevant technology entails more than the world-wide web, and he discussed the importance of other facets of technology such as the use of mathematics in the marketplace (which has had the effect of compressing time by allowing us today to deal with future probabilities), and database mining (based on the availability of large databases and the ability to manipulate and see relationships within them). The impact of these changes on the banking business will be profound. For example, the interaction with customers will be replaced by a dramatically different complex set of relationships. The changes will enhance the production function of banks over time and geography. The changes will also reduce costs, perhaps by 80 percent. One important ramification is that executional skills will lose value, while advice will increasingly become important. At the same time, Mr. Reed questioned predictions about the timing of these changes, noting that many of the technologies we are discussing were available in some form as early as the 1960s. He also pointed out that while it was possible to create derivatives in the 1960s, they were not actively traded until enough participants were willing to deal with them. He concluded by noting that the profound changes that are coming will change the way the banking business is conducted — though not the business itself — but that these changes will not be as quick as some expect.

William Lyons
(American Century Companies, Inc.)

"Most of our federal regulation . . . is built on the premise that there should be a minimum amount of information available to investors to guide decisions. Now, if anything, we have an excess of information and surfeit of information." — *William Lyons*

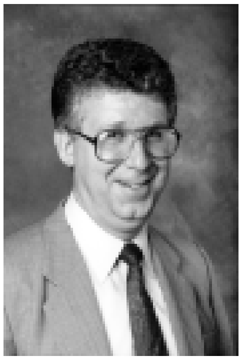
William Lyons discussed technology's impact in three areas of the mutual fund business. First, within the investment process, increased information can improve investors' understanding, and improve the investment process. Companies therefore are investing in technology to improve core investment processes, and to enhance the quality of information used to make investment decisions. Moreover, advanced technologies from other industries, such as pattern recognition, can be applied to complicated investment processes. Second, within the area of execution and trading, technology can improve transparency in markets, and decrease intermediation. For example, the use of electronic executions had increased dramatically over the past few years. This may ultimately lead participants in the mutual fund business to unbundle services, because if technology can permit discrete information services and can separate information from execution, the market will require that they be offered separately and discretely. Third, customer service is likely to be the most significant area of technology applications. Electronic commerce is booming, as investors become increasingly comfortable with security features of the Internet. Those technologies also permit companies to tailor information specifically for customers, and companies can now build technology around customer needs. Mr. Lyons felt that the current environment is not well supported by the federal regulatory scheme, which focuses on ensuring that minimum levels of information are available to investors. In contrast, now we have a surfeit of information. The Commission should reexamine the fundamental premise that underlies much of the existing regulation, with less focus on the content of information, and more focus on delivery systems and access.



Frank Zarb
(NASD, Inc.)

"The fact that we have this new economy that's driving the world is not very well understood." — *Frank Zarb*

Frank Zarb noted that technology has significantly changed the economy, and added that the government's ability to collect and interpret economic data has lagged behind those changes. He further stated that although technology has driven the development of today's financial institutions, the one part of the securities industry that has not benefited from that transformation is the process of exchanging stock. Around the world, stock exchanges have not endorsed the changes that have happened, for a variety of reasons, but he believed that was about to come to an end, as people challenge the cost of execution. He concluded by noting that over the past 15 or 20 years technology has played a major role in the changes in the securities industry, and technology will have an even more significant role going forward. The winners have been investors, particularly small investors.



Robert Pozen
(Fidelity Management & Research Co.)

"Although the number of automated phone calls for us now is in the hundred thousands per day, it actually hasn't reduced the number of calls . . . to real people. It actually has increased them and made them longer and more complex." *— Robert Pozen*

Robert Pozen agreed that technology is an important mover of change, but described himself as a partial dissenter because traditional modes of communication are being retained and reinforced by new technology. Raising the issue of customer relationships in the mutual fund business, he noted that although new technologies such as voice recognition will lead to a breakthrough in the way that customer orders are handled, automation has not reduced the number of customer calls to representatives. He stated that Internet executions will increase as customers become more comfortable with security concerns. At the same time, he agreed with Mr. Reed that many high net-worth customers will still want guidance and advice, and that technology will not eliminate that need. Turning to the issue of portfolio management, he noted that technology can provide huge volumes of information, but leaves unanswered the question of how to absorb all that information. He stated that too much information can be isolating, and it is necessary to take steps to summarize and focus information. Taking the capital raising process as a final example, he noted that technology can replace traditional roadshows, but emphasized that it remained important to directly communicate with the management in companies. Personal interaction will remain the only way to evaluate the integrity, quality and accountability of management.

James Dimon
(Salomon Smith Barney Holdings Inc.)

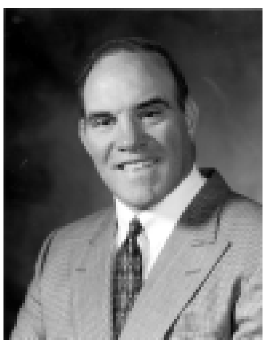
"They take trees in the northwest, they chop them down, and they ship them to some plants and make paper out of them. They ship them to printing plants where you print all the stuff on it, all this ink and chemicals and oils. We ship them to offices. We get them to Federal Express so you can have them right away. We ship them all around the world and it goes directly from someone's desk into a garbage can." *— James Dimon*

James Dimon began by discussing how new technologies are adopted increasingly quickly, and how the new technologies are challenging all industry participants – businesses, regulators and customers – to find ways to stay on top of change. When businesses fail to do that, the customers will vote with their feet. He added that advice will remain important because the world is becoming increasingly complex, and the presence of more information will not reduce that complexity, but potentially can add enormous productivity. For example, technology has made the trading process more efficient, and increased electronic delivery of information would result in substantial increased savings. Mr. Dimon noted how the importance of advice and analysis is linked to the fundamental role that trust plays in relationships. Finally, he noted the potential for abuse associated with technology, stating that we can minimize but not stop abuse.

John Brennan
(The Vanguard Group)

"Advice and trust to me will be the two things that will differentiate people in this electronic world." *— John Brennan*

John Brennan began by discussing the ways that technology has already improved access and service in the mutual fund industry. He believes that the mutual fund industry is on the edge of providing self-service to customers in a new way, which represents a major shift in the business. At the same time, the new technologies are additive, rather than replacing prior uses of technology. For example, mutual funds will continue to get many live phone calls from customers, even after adding new technology. The new level of information availability, and its standardization, will also reduce the risks that securities companies face by lessening the chances of mistakes in providing information. Technology will also lower costs. The result for the consumer will be a broader array of convenient choices at better prices. Mr. Brennan also emphasized that participants in the investment industry will increasingly be differentiated by advice and trust.



David Pottruck
(The Charles Schwab Corp.)

"I think the SEC has the opportunity to push for — to demand a more level playing field so that the average American has the opportunity to get information that up until this point has been privileged to a few players who then take profit out of the system before the average investor ever even gets in." *— David Pottruck*

David Pottruck discussed how technology and the Internet had transformed the investment industry. Until four years ago, Internet trading did not exist; now over 3 million investors use the Internet to trade. He stated that Internet access is transforming two areas of financial services — transactions and information. Technology has lowered the costs of transactions by 70 percent by eliminating middlemen, and has permitted brokers to use their time and energy to provide more value-added services. Moreover, by permitting the delivery of meaningful information real-time, the Internet can level the playing field by providing retail investors access to information on par with professionals. He also noted that even with increased automation, the increased demand for information means that the non-automated parts of the business, such as face-to-face meetings and customers' phone calls with representatives, have never been busier. He encouraged the Commission to champion the Internet as a leveler of the playing fields for all investors, to allow the Internet to flourish, and to create a regulatory environment that will permit the Internet to allow global investing for small investors. The Commission should not saddle the Internet with regulations that are meant for a paper-based world. Moreover, the Commission should accelerate the regulatory process, such as through the use of pilot programs, because the older deliberative process can be very slow. Finally, he emphasized the importance of the Commission's role in ensuring investor confidence in the securities markets.

Implications of Technological Changes for Securities Oversight

Chairman Levitt opened the second part of the discussion by asking the participants whether current rules and regulations had prevented the use of new technologies.

Mr. Pottruck responded by discussing the way that broker-dealers sign up customers, stating that the Commission should permit broker-dealers to sign up customers on-line, using digital signature technology, instead of requiring physical signatures. Mr. Pottruck also suggested that Commission should clarify the rules regarding broker-dealers' duties to customers, such as whether a broker-dealer's use of electronic technology to deliver research and information in response to a customer's request constitutes a recommendation and thus triggers suitability requirements.

Mr. Brennan emphasized the need for regulation to develop on a common basis globally. The alternative is to force companies to put up firewalls to avoid receiving expressions of interest from investors in certain countries, due to the risks presented by an unharmonious global regulatory framework. He urged the Commission to address the issue and help American companies that are constrained in their ability to use the Internet efficiently to conduct global business.

Mr. Lyons concurred that it would be desirable to permit issuers and securities companies to deliver investor information electronically. He also stated that the Commission should reexamine the requirement that boards of directors of investment companies meet in person for certain matters.

Upon Mr. Zarb's request, Mr. Pottruck elaborated on the way that technology has changed the business judgment aspect of suitability requirements. While discount brokers formerly were viewed as not being under a know-your-customer requirement, they now have to understand their customers' actions and make sure their customers' investments are suitable. Mr. Pottruck described how a problem area emerges when customers request information and brokers deliver research in response, because customers may argue that the delivery of research constituted a recommendation.

Ms. Perrier-Dryer commented on the costs that companies face when going public, including the physical paper costs of printed materials such as prospectuses and annual reports. If companies could deliver much of that information electronically, that would help the companies' bottom line and benefit investors. She said that the Commission should encourage that type of delivery, at least by allowing recipients to designate if they would prefer electronic delivery.

Chairman Levitt responded that technology was moving the Commission in that direction. The question was what could the Commission do to accelerate that movement.

Barry Barbash, Director of the Division of Investment Management, noted that the Commission in 1995 and 1996 put out interpretive releases dealing with the electronic delivery of documents. He asked the participants whether those releases went far enough. Mr. Pozen replied that the releases were a step in the right direction, but did not go far enough. He agreed with Mr. Pottruck that one area for improvement is the process of signing up customers. Mr. Pozen further stated that the releases require companies to obtain customer consent to send documents electronically, and that the releases require companies to use the mail to send unscheduled documents to customers, even when the recipient had consented to electronic delivery. Mr. Pozen described those aspects as constituting a bias against electronic delivery. Mr. Pottruck concurred that electronic delivery would reduce costs, and Mr. Lyons noted the possibility of establishing a lower cost class of mutual fund shares for individuals who elect to communicate electronically.

Chairman Levitt then addressed longer-term issues, asking what kinds of technology will we be dealing with over the next five to ten years for transmitting information, and what that technology's impact would be on financial markets. Mr. Schrader discussed the possibility that computer systems would increasingly have interoperability with other systems, such as telephone and television systems. That would eliminate questions as to whether customers would have electronic access available. He added that none of the proposals that had been discussed at the roundtable was a challenge technically, or particularly new. Essentially, we are seeing a cultural phenomenon more than just a technical evolution.

Mr. Ferren noted that the new technologies that succeed will be those that establish better or more meaningful relationships with customers and consumers. The technologies being discussed will enormously affect the convenience of accessing information, and ultimately knowledge, such as by permitting the delivery of information in a form customized to the recipient. Although the new technology in the near-term would lead to "have nots" who lack access to the technology, he predicted that within a comparatively short time we will take e-mail addresses for granted and consider assured electronic delivery as trusted as the post office. Once the public has trust in a technology, the barriers to its widespread use will collapse. Mr. Ferren emphasized that society has to carefully manage the transition, and we must recognize that there is no such thing as an individual investor with an average set of requirements.

Commissioner Laura Unger and Mr. Ferren further discussed the nature of the "trust" at issue—whether it was a trust to be built by the industry or provided by regulators, or whether it was a trust of computers and technology. Mr. Ferren explained that "trust" encompassed all of those aspects, with the basis for a trusted relationship being that people can exchange ideas, information or services in a way that the outcome is predictable and value is delivered. Issues of trust are modified within the electronic domain, but they are fundamentally the same. He also explained that one aspect of the concept of trust focuses on privacy, and whether electronic communications will remain private.

Brian Lane, Director of the Division of Corporation Finance, asked about prospective technological changes and their associated regulatory concerns, such as prospectus delivery by means of interactive television and private internets with greater capabilities. Mr. Schrader responded that private internets already exist, and that internet service providers provide different levels of quality and service. The real question, he stated, is whether information can be sent electronically without losing quality.

Mr. Zarb expanded on the issue of how regulators would affect the marketplace, stating that regulators by definition are going to slow progress in the marketplace. Due to institutional lethargy, regulatory institutions take a longer time to adjust to new technologies. Mr. Pottruck emphasized that the new technologies provide the Commission with a great opportunity to push for a level playing field. Mr. Pottruck pointed out that analysts' calls and roadshows still have limited dissemination, although the process of capturing that information and making that information widely available is simple. Yet he saw no compelling effort to level the playing field.

Mr. Reed moved the discussion to international issues, emphasizing that it was important for the Commission to move its thinking beyond the scope of national borders. With new technologies, Americans are going to access foreign markets, and vice versa. That highlights the need to globalize supervision and to recognize that the lowest common regulatory denominator to some extent becomes available to everyone. After Mr. Lindsey inquired about how a national regulator should deal with an international firm, Mr. Reed emphasized the need for global coordination. He discussed the significance of efforts that led banking regulators to agree to global rules about the supervision of banking, and a private sector initiative which led to global cooperation on clearing and settlement. He also noted the current effort to try to globalize accounting standards. Mr. Reed concurred with Mr. Zarb's point that the regulatory process lags behind the technology, but emphasized that without globalized standards, we are going to have to use barriers and firewalls to insulate one market and set of market players from the global marketplace.

Chairman Levitt concurred with the need to work toward globalized standards, but noted that the participants were talking about nothing short of cultural change. Taking accounting as an example, he did not want to see U.S. accounting standards move to a lower common denominator. Achieving globalized standards is a major undertaking which may be incremental.

Commissioner Unger and Mr. Reed further discussed the need to reconcile differing worldwide rules and regulations relevant to investor protection. Mr. Reed emphasized that to access global markets and global capital flows, it is necessary to have some set of standards. He recognized the difficulties of obtaining agreements, but emphasized that technology was bringing us to a world without borders. The problem was the Commission's to deal with.

Commissioner Norman Johnson recognized that the Commission would lag behind the changes that are occurring, and stressed the importance of maintaining communications between the Commission and the securities industry. Mr. Brennan added that one of the risks associated with these technologies was understanding what constitutes the "industry." Much of the information available now is from people outside the "industry." That essentially is an investor protection issue, given that the Internet allows statements to appear more credible. It is particularly difficult to identify who is on the leading edge of purveying information on the Internet.

Chairman Levitt recognized that regulators do not manage change, and that they have a responsibility to be responsive to change. Cultural changes require regulators to listen and try to be responsive. Mr. Brennan added that it was a good thing for regulators to be a little behind the curve. From the perspective of the mutual fund industry, the fact that regulators were present added value by enabling the development of a trillion dollar industry built on trust. Mr. Pozen expanded upon the idea of trust, noting that technology made it easier for complete strangers with little capital to obtain money from the public.

Mr. Pottruck noted the difficulties involved in trying to keep up with new technologies, concluding that it was necessary for participants to approach their activities in fundamentally different ways. Chairman Levitt concurred, noting the need to be nimble and responsive to change.

Richard Walker, General Counsel of the Commission, concluded the roundtable by revisiting and summarizing the ideas that the participants had discussed.