

Fellows Luncheon Address

141st SMPTE Technical Conference, November 21, 1999

By Charles A. Steinberg

I am honored to be here today with industry colleagues and friends who have helped make my four decades in television so rewarding. I am particularly grateful to be at this last SMPTE Conference of the 20th century, in a year that marks the 100th anniversary of film. I think it's safe to say that the century now coming to a close has been defined by the moving image and how it has transformed our culture and communications.

I am excited to be here at SMPTE as we usher in a new millennium. As the theme of this watershed SMPTE Conference suggests, we are "Moving Imaging into the Third Millennium." It is this forward looking, visionary thinking that has been SMPTE's signature—hallmark—DNA—if you will. The excitement we feel is not how far the moving image has come, but how much farther we can go.

Every time I get together with engineers and executives in the television industry, pick up a newspaper or trade magazine, or simply turn on the TV, I marvel at how our industry continues to change and reinvent itself. I feel the same excitement, joy, and wonder I experienced as a young engineer starting my career in the just-born television industry in the 1950s. Back then we believed that anything was possible, that the future had no boundaries, that our revolution in communications would change the world. And you know something? These beliefs are even stronger and truer today than a generation ago. We are seeing the dawn of a new era, and I believe that the sun is shining brighter on the moving image in all its forms than ever before in our history.

The Platinum Age of Digital Television and Cinema

As you know, I've spent most of my career in the broadcasting industry, coming of age during what is often described as the "Golden Age of Television." If there's any truth to the old saying that we reach new heights by standing on the shoulders of giants, then this "Golden Age" was made pos-

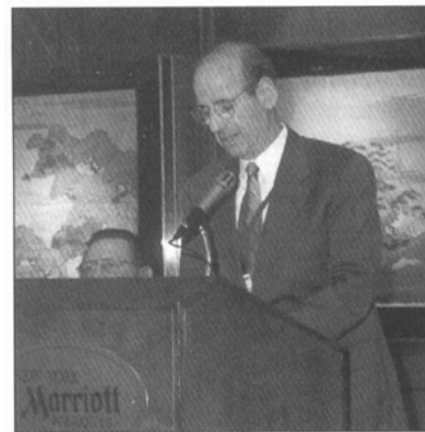
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sible by equally glorious eras in film and radio. Those heady days earlier in this century were indeed golden, but I offer this simple assertion: The past will pale in comparison to the future.

Today, we're entering a "Platinum Age of Digital Television and Cinema." We are experiencing a fundamental shift in the entire landscape of sight and sound, with the transformation of the very meaning and role of the "moving image" in our lives, our culture, and our economy. As the winds of change swirl around us, I contend that SMPTE is in the "eye of the hurricane." One thing is very clear: technological advancement is driving economic, cultural, social, and political change. If we are ever to realize the promise of this "Platinum Age of Digital Television and Cinema," it is because of the work that technologists are doing in your labs, at your terminals, on your white boards, in standards committees, and in exhibits and technical sessions at conferences like this one.

Will phrases like "loop bandwidth optimization and jitter measurement techniques for serial HDTV systems" enter the vernacular like a Jerry Seinfeld one-liner? Would "distributed production using loosely and tightly coupled systems" ever be confused with a Howard Stern routine? Of course not. We labor behind the scenes, outside the spotlight of our very glitzy industry. But let me assure you that at the end of the day, technology is the engine of change, and the work of SMPTE is making a major contribution to shaping our digital future.

So in thinking about the central role of technology in this emerging drama, I looked at the issues being discussed at SMPTE—as well as the many discussions I've had with folks in the television and film industries. I've distilled these conversations into eight important trends shaping the moving image in television and film as seen from a manufacturer's perspective, both now and in the future. While my observations are shaped by my experience in television, I think many forces are directly relevant to other segments of the moving image industries.



Content is King

Sumner Redstone—a man who knows his way around television and cinema—pointed to the number one trend shaping the moving image when summing up the reasons behind the Viacom/CBS deal: "Content is king." The explosion in the number and type of channels all add up to one thing: The digital terrestrial, satellite, cable, Internet pipelines have to be filled with more content.

But let's not stop there. If "more" was the only issue, the problem would be simple; but the reality is that the explosion in digital content demands "different" as well. The creation and distribution of content in a digital age means playing by a new set of rules.

Time-to-air and market is critical. Repurposing of film, video, and computer-based content is central to making money. Portability across distribution channels and technologies is essential. Quality is relative to application and audience. This environment where content is king, demands a new approach to comprehensive management of content—a new architecture for digital asset management.

Our next generation of digital asset management solutions must be optimized to make the storage, retrieval and distribution of digital content easier, faster, more versatile, and less costly. This is equally true for theatrical and packaged media; broadcast, satellite, and cable; and the emerging world of the Internet.

Distribution is Decisive

If we listened carefully to Sumner Redstone at the Viacom/CBS news conference, he quickly followed his content is king remark by saying "distribution is king," too. Can the brave new world of digital television have two kings? The answer is that content and distribution are becoming highly intertwined; they are the two faces of

the same business process. Our challenge is to develop a better appreciation of the unity of content and distribution as we develop digital technology architectures.

The ways in which viewers can watch and interact with video and film content is growing at incredible speed. The digital platform that marries content and distribution must be versatile enough to deliver video-on-demand, high-bandwidth Internet and Web-enhanced television, interactive gaming, e-mail, and, of course, multiple streams of HDTV and SDT, just to name a few. The danger is to assume that there is "one true technology path" we have to follow. As the relationship between content and distribution grows closer together, the important thing to remember is that there is no one technological winner or loser.

As Philip Laven, director of the technical department of the European Broadcasting Union, reminded us in his recent "Reinventing Broadcasting" speech in Montreaux, the notion of pure "replacement technologies" is a myth. He observed that we would be foolish to believe that all new technologies will automatically replace all old technologies. That's flawed thinking and bad history. Radio broadcasting has not been replaced by television, nor has the cinema been replaced by TV or videocassettes. And the same can be said of the Internet and its impact on TV and packaged media. In fact, radio, cinema, television, and recorded video have gone from strength to strength despite—indeed, perhaps because of—intense competition from and cross-fertilization with newer technologies. So it is our task as technologists to raise the discourse above the din of popular misconception.

It's not about terrestrial vs. cable vs. satellite vs. DSL vs. cable modem. The battle doesn't revolve around broadcast vs. pay-per-view vs. theatrical vs. packaged vs. passive vs. interactive. Too much time is spent debating HDTV vs. SDTV vs. interlaced vs. progressive scanning, or whether a display device should be a TV, a PC, a combination of both, or some new appliance all together. The successful innovators will be the ones that master a diversity of content distributed over a multitude of channels, technologies and pipelines.

Let me offer an example near and dear to my heart, as I suspect it is to many here today. E-Cinema—the electronic distribution of digital content for theatrical viewing—will soon be a practical and business reality. But we

should seek to develop the full potential of E-Cinema. Remember, digital technology is also transforming the creation of movie entertainment. I am enthusiastic about the promise of E-Cinema for production as well as distribution. We must develop the tools content creators require for long-form digital theatrical and television production.

In fact, Mr. Idei, president and CEO of Sony Corp., was a keynote speaker at the latest Comdex in November 1999. He presented George Lucas with the first 24-frame digital cinema camera developed by Sony in cooperation with Panavision. Lucas then promptly announced that his next installment in the *Star Wars* trilogy will be done entirely with 24-frame digital technology—from acquisition through post-production. George Lucas' actions speak even louder than words. He believes that technologies can be advanced and applied both to enhance the economics of production and transform the creative process itself, through new types of content and interactive viewing experiences.

True value is provided to the marketplace by participating in these transformations, and putting all the pieces of the puzzle together from content creation through distribution and viewing. Standardization will be a key requirement in these endeavors.

Companies are Consolidating

Simply put, the big content creation and distribution companies are getting bigger and more complex. Just think about the consolidation that has happened or is in the works in recent months. CBS is marrying Viacom. NBC is swallowing a large share of Paxton. ATT grabbed TCI. DirecTV enveloped Primestar. And that doesn't even include Time-Warner/Turner, Disney/ABC, and the expansion of Rupert Murdoch's News Corp. empire.

Precisely because of myriad sources of content and pipelines of distribution at their disposal, these consolidated "super-brands" are the ones that are demanding a new generation of digital technology for content creation, digital asset management, and networking. I think one of the great challenges we face from an engineering and development point of view is the need to develop digital solutions that are extremely scalable, flexible, and adapt easily and quickly to the different business models that the super-brands are evolving.

Evolving Business Models

Indeed, the whole question of busi-

ness model is the Gordian Knot of digital entertainment and information. To be perfectly candid, I have yet to hear a real "point of view" business model for making money and sustaining profitability with the new economics of digital television. It's as though we're all actors in a play for which the ending has not yet been written. These companies are looking to the technologist to help solve the problem.

Increasingly, we're being asked to contribute to bottom-line profitability and growth. Our task is more than creating and delivering pretty digital pictures. We play a vital role in "super-brands" quest to create new eyeballs, win larger shares of existing viewers, generate incentives for viewer loyalty, and increase consumers spending across the varied distribution channels. To do this, leading edge media companies are experimenting with new revenue streams and profit-enhancing strategies that increase advertising dollars, leverage subscription revenue, generate sales of aftermarket goods and services, and share in e-business transactions conducted over interactive pipelines.

As a result, innovations must resonate with the executive suite, not just the broadcast booth. While it may seem a far cry from the original character of the technologist, our message must be music to the ears of the CEO and CFO as well as the chief engineer or director of photography.

This has a tremendous impact on how we approach and set priorities for R&D and product development. Increasingly, we're being asked to design, manufacture, and market by answering the three strategic questions on the lips of every CEO: How does this technology investment reduce my costs of doing business and increase my competitiveness through productivity, efficiency, and faster time-to-market? How does this technology investment create a new business opportunity for fast growth and rapid profitability? How does this technology investment future-proof my risk so that profitability, opportunity, and competitive advantage can be sustained in a dynamic and rapidly changing marketplace? If done correctly, technology is the enabler of business change and the catalyst for business opportunity.

Changes in the Competitive Landscape

The same dynamic seen in our customers is also seen between competitors. Just as digital content and distrib-

ution is transforming broadcasters, networks, studios, and their business models, so too it is changing the competitive landscape.

The competition in our cross hairs has shifted—not only in terms of companies, but also in terms of entire industries. In the old days, it was manufacturer vs. manufacturer, studio against studio, network slugging it out with other networks. And, while this certainly remains true today, competition is much more complex in nature and broader in scope.

For example, the world of digital television includes very well established as well as start-up organizations whose pedigrees are in computer and telecommunications industries—companies whose pedigrees do not come from the creation and distribution of moving images. While these companies may not know much about designing VTRs, cameras, and editors or producing, marketing, and distributing entertainment and information programming, they sure know a lot about networking, storing, and distributing digital content in a broadband environment. And this will become even more pronounced as the Internet and broadcasting converge and interactive entertainment becomes a reality. What's more, this new generation of competitors is more software, application, and services-driven than many of us have been. Many are keenly focused on integrated communications and e-business—the hot growth areas in a broadband networked marketplace.

“Moving Imaging into the Third Millennium” will be achieved by a broad base of technologists with many backgrounds and perspectives. We need to make sure that our tent is big enough for everyone, and that we issue a sincere invitation to join the party.

Coopertition is Critical

Let me take this one step further. Not only has the competitive set changed, but so too has the nature of competition. Let's not kid ourselves: No company can do everything or do it by themselves. None of us can go it alone, has all the answers, or can marshal unlimited resources to explore every pathway to the digital future. Increasingly, technological innovation and advancement will be the product of strategic relationships between leaders and across industries. And the rules of engagement are changing. We may be comrades one day, competitors the next, and even customers of each other after that.

ICs called “coopertition”—compete when you can and cooperate when you must. It's the new way of business life. One need look no further than the development of open systems and technical standards such as MPEG or unique programming arrangements like NBC and Fox with NASCAR coverage. Fortunately, “coopertition” is a natural way of life for scientists and engineers. I believe that the real power of a SMPTE is not only to be a “professional society” but a true “technology community” that transcends, indeed demolishes, the artificial barriers that separate companies and industries.

Fast and Flexible Win the Race

Along with “coopertition,” I see another imperative where we in the industries serving the moving image have arguably talked a better game than we've played: time-to-market.

The pace of change is quickening, and product development and deployment is measured in Internet time. In the not-too-distant past, a technology innovation revealed at NAB would take one to two years to enter the marketplace. That's just not going to cut it anymore. As technologists, we need to pick up the pace, cutting our time-to-market in half or in thirds.

Not only must we get technologies to market more quickly, but also we will be under increasing pressure to advance and refresh our implementations more frequently. Stepping up the pace of innovation and deployment means that we will be called upon to swiftly squeeze profitability out of new technologies, reduce development cycles between product generations and architectures, and apply core innovations across markets and product categories more speedily than in the past.

Mentor a New Generation—and Let Them Mentor Us

As you've probably noticed, I'm a firm believer that the “Platinum Age of Digital Television and Cinema” is being shaped by trends that are turning the world as we know it on its head on every level. Our choice is very simple: We can either master change or allow it to master us. As the cowboy philosopher Will Rogers wryly observed, “Even if you're on the right track, you'll get run over if you just sit there.”

One area where we must move—and move quickly—is in mentoring the next generation of technologists and, just as importantly, encouraging them to mentor us. I cannot emphasize strongly enough how important the

“generation conversation” is to the digital future of television and cinema. We have learned so much over the past 40 years about the technology, business, and social impact of the moving image. It would be such an incredible waste of knowledge, insight, and experience if we do not make a conscious and concerted commitment to teach our children.

At the same time, we must recognize—with both awe and amazement—that the revolution of my generation will pale in comparison to revolution being wrought by the new generation of technologists. This is a generation for whom computer code is part of their DNA, and for whom visual communication is second nature. We must learn from them as surely as they must learn from us.

In the “Platinum Age of Digital Television and Cinema,” the teacher will be indistinguishable from the student, for they are one and the same. For this reason, I believe that one of the most important roles that SMPTE must play is as a catalyst for “two way education.” I can think of no organization better suited or better positioned to fulfill this mission.

Conclusion

This is a great moment in the history of the moving image—the kind of moment to influence history that comes but once in a career or lifetime. And this is a great moment to be “Moving Imaging into the Third Millennium,” for as we enter the “Platinum Age of Digital Television and Cinema,” SMPTE is in the vanguard, blazing the trail that others will follow.

I won't minimize the challenges before us. They are substantial, and the road to tomorrow is still uncharted. But I find these challenges energizing, not intimidating, and I believe that men and women of SMPTE feel the same.

To me, SMPTE embodies the scientist's quest to do more, to do better, to do differently. And I, for one, have been privileged to stand side by side with you in this pursuit of excellence. SMPTE has truly lived up to its motto, “Setting the Standard in Motion Imaging.” And I have every confidence that this will be even truer as we cross the threshold into the next millennium.

As Howard Stringer concluded in his keynote address at NAB, “Hang onto your remotes because you haven't seen anything yet!”

Thank you.