

A Note of Introduction to the Report of the Task Force on Digital Image Architecture

By **Kenneth P. Davies, Vice-President, Engineering**

The publication of this report is a noteworthy event in the work of SMPTE in standards development, signifying the beginning of a new relationship between the various interests that make up the expanding constituency and area of responsibility of the Society. The technologies of television, telecommunications, and computers are clearly coming together and already overlap in many places. The uses of these technologies are spreading into new applications and industries. Standards that have this breadth of technology and application will be doubtless required, if the future is to have the freedom to use images as the principle media of communication, education, entertainment, and visualization in a fruitful and synergistic fashion.

This report represents the important first step along this road to the future, defining some of the directions and issues that will have to be considered as the Society establishes the basic architecture on which future standards for

specific application and industries will be based. It sets out the fundamental issues from several perspectives and proposes a number of concepts for future study, as standards lead to a family of digital image systems that are harmonious, compatible with the image systems of today, and globally interconnectable in the image world of tomorrow.

The report was created by a Task Force of some 20 expert members, supported at various times by about 50 other participants, in the period from April 1991 to July 1992. In a work of this magnitude and with a very short time scale, it is likely that some interests may not be fully represented. It is, however, but the beginning of a considerable program of work which will require the best efforts of all interested and affected parties to complete. It is published in the *Journal* both as valuable information regarding the future of image communications and as an invitation to participate in the next steps of the work.

Report of the Task Force on Digital Image Architecture

Dr. W. Stackhouse, Chairman*

Preface

For some time, the communities participating in the standardization activities of the Society of Motion Picture and Television Engineers have considered the role of television in the future of visual communications. In recent years, the debate has been joined by members of other communities affected by the convergence of communication and imaging technologies enabled by a common set of digital building blocks.

The emergence of digital coding as the common language of visual communications may fundamentally change our view of the world. The extent to which this common language will affect life in the 21st century may be even more profound than the effect that the medium of television has had on life in the 20th century. Television has provided a window to the world — often real-time — for many of the 5.4 billion inhabitants of this planet. This medium of cultural and information exchange has enabled previously isolated populations to join an emerging global village — one increasingly free of barriers. The common digital language offers a unique opportunity to leverage converging technologies, such as television, computers and

telecommunications, into a global communications network. Such a network would have the potential to offer a vastly augmented range of services to all system users, thus opening up new markets to all of the affected equipment and service providers.

Worldwide, there is a growing consensus that the time has come to develop standards for television systems based on a new paradigm — appropriate for today — with forethought to future requirements. The introduction of digital technology into imaging industries, together with the widespread introduction of digital communications, creates a window of opportunity to establish a digital image architecture with unprecedented freedom of application and interconnection.

This Report examines some of the fundamental issues that must be addressed in achieving a compatible set of standards enabling a globally interconnected and interoperable visual communications network. The essential concepts for this family of standards include: an open (non-proprietary) system architecture, interoperability, scalability, and extensibility. It is hoped that this Report will stimulate the interest of many groups and organizations involved in the establishment of imaging standards, today and in the future, and lead to agreement on a single system, flexible enough to accommodate a wide variety of needs, while enabling worldwide interoperability.

*The Task Force was chaired during its early work by David Trzcinski (PictureTel).