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The New Electronics Industry

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Biography: Mr. Engibous joined Texas Instruments in 1976 as an integrated circuit design engineer specializing in the design and development of high voltage integrated circuits. His entire 19-year career at Texas Instruments has been associated with semiconductors. Engibous became president of the Semiconductor Group in December 1993. His previous positions include: manager of the Application Specific Products business ('91 - '93), manager of the Linear Products business ('85 - '91), Semiconductor Group vice president ('85 - '91) and Semiconductor Group senior vice president ('91 - '93).

Mr. Engibous holds bachelor's and masters degree's in electrical engineering from Purdue University.

ABSTRACT

Over the next decade, the electronics industry will undergo one of the most significant transformations in history. The existing television, telephone, and computer industries will likely merge into one mega-industry. As this mega-industry emerges, three components will be visible: networks and computers, multimedia devices, and digitized content. Excluding the digitized content, this new industry has the potential for \$3.5 trillion in annual revenue by the year 2005, up from approximately \$1.5 trillion today.

In this environment powerful networks will closely link corporations with their customers, their suppliers, and each other. Corporations will be capable of doing business anytime, anywhere in the world. They will also be able to leverage the skills of people worldwide without regard to their location. The technology necessary to support this new environment either already exists or clearly will exist within the next ten years. But barriers to the use of this technology remain. Corporations are reluctant to change corporate policies and processes to leverage the integrated environment and government regulations in some areas must change faster to keep up with networking technology.

Driving this change in the electronics industry is the so-called digital revolution. All forms of data and information are becoming digital. The emphasis of electronic products and technologies in the future will be on the capability to collect, process, compress, transmit, and display this digital data.

To be a leader in this area will require competency in microelectronics, digital signal processing, and software. Microelectronics, more specifically semiconductors, are fundamental to the existence of this new electronics industry. Although the semiconductor industry has historically been volatile, with an average growth rate of 15 percent per year, we have seen growth rates at, or above 30 percent a year for the last three years. An average growth rate of 20 percent per year between now and the end of this decade is possible, driven by the worldwide adoption of computing and communication products and the steadily increasing semiconductor content in these products. The growth rates for digital signal processing (DSP) semiconductor devices will be even higher. DSP's will become a part of almost all electronic products including telephones, hard disk drives, encoders/decoders, automobiles, multimedia devices, and office automation products. The DSP market, which was approximately \$1 billion in 1994, should surpass \$10 billion by the year 2000. Finally, software will be pervasive in the new electronics industry. It will be embedded in every electronic product and central to the running of every business. Applications software running in the network computing environment will be a major component of the digital content market.

We are on the brink of the most exciting era in the history of the electronics industry. The ways we live, learn, work, and play will change for the better. The technology is real. We are limited only by our ability to conceive, design, and build next generation digital electronic products - an exciting prospect for the knowledge workers of today and tomorrow.