

**Connecticut Needs a World Class Digital Infrastructure****Lou Manzione**

Connecticut is in a fight for its economic life. The disruptions of the post-industrial economy, often known as the Information Age, provide the opportunity to recast the economic landscape for or against us in the competition with other nations and other states. Virtually every aspect of modern life is dependent on the creation, manipulation and transmission of digital information. We are witness to the rapid evolution of new business models that are entirely dependent on the movement of billions of bits. If you believe you are insulated from this information crossflow, you are mistaken. We may recognize that information technology has revolutionized everything from radiology to entertainment, but imagine the plumber who can download at the job site the mechanical plans of any building. Then there are the new businesses entirely dependent on the import, manipulation, and export of billions of bits worldwide. Think of ESPN as one of the best examples of this model and you see the huge potential for the economic well being of the state.

These networks are an incredible facilitator of new enterprise. But we are not the only ones who have realized this and others states and nations are moving forcefully to eclipse us in this critical element of the economic infrastructure. With our high per capita income and concomitant high cost structure, we could be an easy target. The Connecticut Academy of Science and Engineering conducted a study on the importance of a world class communications infrastructure that was requested by the General Assembly. In this case both the Commerce Committee and the Energy and Technology Committee commissioned this investigation; a visionary action on their part to grapple with a complex, yet high potential challenge. I was the Chair of the study effort, and our report (<http://www.ctcase.org/index.html#sciencenews>) was presented to these committees in January 2007. We concluded that emerging wireless technologies and pervasive fiber optic networks are essential components for unlocking significant economic growth.

Universal, high bandwidth wireless enables access to huge volumes of information, empowering mobile professionals, and creating new business models in everything from real estate to construction management; anything requiring critical information outside of a conventional office location. In fact, the concept of a conventional work location with fixed business associates, as well as the tiresome commute to that location on Connecticut's already clogged roadways could become dim memories.

Fiber optic technologies are the second major component of the information infrastructure. These fiber routes are the 21<sup>st</sup> century version of the avenues of commerce, as important today as rivers were to the 18<sup>th</sup> century, rails and canals to the 19<sup>th</sup> century and the interstate highway system to the 20<sup>th</sup> century. With the continued growth of high speed electronics that encode the data, and the multiplexing of hundreds of wavelengths of light onto a single fiber, the capacity of a fiber link may be limitless for all practical purposes. As the cities of the 18<sup>th</sup> century grew around rivers and ports, the economic centers of the 21<sup>st</sup> century will grow and flourish around the fiber nodes. The

payloads of the past were enabling materials such as coal and finished goods such as farm tractors. Increasingly, the raw materials are data and specifications, whereas the products are world class designs for everything from microprocessors to furniture.

Given that no one doubts the enabling capability of this technology, what should Connecticut do about it? Our report concluded that direct state involvement in building the world class infrastructure was not warranted; nor is direct subsidy of the networks a good model in the home of the Connecticut Yankee. Rather, we urge government facilitation of the build-out of this information infrastructure. State, city and local government have to become facilitators of the expansion and constant upgrade of these economic lifelines.

Connecticut must become an early adaptor of emerging wireless technologies such as WiMax which promises significantly higher data rates and much longer ranges than conventional WiFi, the short range wireless protocol found in coffee shops and airports. Future versions of WiMax promise mobile use as well, providing wide access to very high bandwidth, and new business models to take advantage of that pervasive high bandwidth. Many cities are scrambling to be test sites for the early deployments of these new mobile networks, and Connecticut with its smaller cities and streamlined decision processes could compete well for these trials. Zoning restrictions that make deployment of new antennas more difficult and more costly have to be reconsidered against the economic benefits these create.

Connecticut must be world class in fiber infrastructure as this capability will make possible new businesses that move billions of bits worldwide. This will take commitment and action to encourage the service providers to install fiber in all major building and trenching projects. Tax breaks and others incentives must be utilized to position the state as a leader of this infrastructure, not only in the networks themselves, but also in attracting the businesses that will create and utilize the capabilities. Other nations have been proactive in assuring this infrastructure enables their citizens to compete on the world stage; we have to be equally assertive.

Finally, as suggested in the study and as proposed by the Energy and Technology Committee in House Bill 6780, we encourage the adoption of legislation to create a proactive “Broadband Internet Coordinating Council” comprised of subject matter experts from corporate, civic and academic sectors. This council would advise the General Assembly, state agencies and the Governor, as well as interface with the private sector on an on-going basis to assure that our infrastructure is world class, economically enabling, and a vision for the future. The world has flattened and the risks are high. This infrastructure represents a very cost effective investment to secure our future in a very competitive new world order.

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