

RURAL DEVELOPMENT THROUGH ELECTRIFICATION:

A Model from Yesterday for Today's Electronic Development Issues

by Kate Marek

We listen to stories of the past in order to gain insights into the present and the future. Stories tell us about people, about events that shaped people's lives, and how people responded to those events. It seems that in times of uncertainty we are particularly apt to look to the past for direction, looking for the wisdom of the elders to guide us toward the future. As the Chinese philosopher would say, we are in the midst of interesting times. Rapid technological developments are driving the global society to a new phase in human history, purported to be as monumental a shift as those initiated by the invention of the printing press and by the societal shift toward industrialization.

Foremost among those technological developments is the move toward global interaction through telecommunications. New technologies enable the wheat farmer in Kansas to be a part of a cyberspace community which might include a coffee farmer in Brazil and a sheep rancher in Australia. In addition to the social impacts of such communications capabilities, there are dramatic economic and educational consequences. If the farmer in Kansas can communicate so easily with the rancher in Australia, it follows that she can also communicate directly with the customer in Italy and the product developer in Taiwan. Use of such technologies might radically increase the Kansan's potential for profit.

In addition, a student in Kansas also has the advantages of local communication and information retrieval. As more and more information is digitized, transfer of that information to remote sites will be easier and

faster. The information which might be accessed via telecommunications is not limited to print; audio, pictures, and video will continue to be more and more easily accessed through electronic transfer.

However, as we look at the potential for increased communication, expanded communities, and enhanced education, we must examine issues such as cost and availability. What infrastructure will we build to deliver these communication services? Or, will the infrastructure develop haphazardly in the absence of uniform development? Who and what are responsible for this development? Government? Major commercial interests? Small businesses? Independent entrepreneurs? Utilities? And, who gains and who loses based on which developmental path we follow? Our goal in the United States must be to create an infrastructure where each citizen can have an equal opportunity to gain from access to the infrastructure; and an equal safety net provided to prevent losses due to lack of access.

It seems that we could benefit by looking to the past for a developmental model. Certainly, there must be instances in our recent history when technological developments have come to our country where there was the potential for parallel social, economic, and educational impact. As we consider the development of the information infrastructure, three key priorities must be kept at the forefront in our thinking: 1) reliability, 2) affordability, and 3) equity of access. All geographic areas in our country must have access; all socio-economic groups in our country must have access; all areas and groups must also have reliable delivery systems; and, access must be affordable to all.

As a matter of fact, these same issues were indeed discussed at length in the early 1900s with the development and expanded use of electricity. Electrification of rural areas was seen as a special need, since for economic reasons commercial providers were reluctant to string electric wires to sparsely populated areas. Yet, electrification was acknowledged to be a mandatory prerequisite to economic growth in both urban and rural settings. How was the need for rural electrification resolved? Perhaps a look at the Rural Electrification Association (REA) initiatives of the 1930s addressing the need for rural electrification could provide insights to the

problems associated with the development of an information infrastructure.

Reading historic material about the delivery of electricity to all parts of our country, one cannot help but be struck by the similarities in language and philosophies with our current discussions about delivery of telecommunications to all areas in our country. The introductory sentences in the 1944 publication, *Public Rural Electrification*, set the tone for discussion of the REA:

Failure to electrify the whole country has deprived twenty-five million people in rural districts of a modern standard of living and has impeded the vigorous development of our national economy. Electric power is a basic resource with which a rural area can raise its living standards and build an integrated economy...Electrification has not proceeded at the same pace in rural as in urban areas primarily because private companies have hesitated to enter a market which, in their view, offers few opportunities for high returns on invested capital...The entrance of the federal government into the field is clearly to be recognized as the factor which has, above all others, "changed the situation" (Muller, page 1).

In the 1930s, the government of the United States was supportive of discussions regarding the importance of providing rural areas the same developmental opportunities as urban areas through affordable and reliable access to electricity. Without federal policies, electrification of rural areas would have come very slowly. Just as with current development of information technologies, low density markets made commercial development slow. Higher usage of electricity made it much cheaper to deliver; therefore, there was a large threshold to overcome in terms of cost effectiveness in low population areas. The fewer the people, obviously, the less use of electricity. It is interesting to examine the policies that drove the development of programs to provide rural electrification in the 1930s.

The Rural Development Association policies of the 1930s provided consistent, affordable capital for rural electrification through grants and low interest loans. Many of the loans were based on population density, whereby the lower the population density, the lower the interest rates on

the loans. This correlation between population density and interest rates was a direct response to the need to provide higher subsidies in areas where lower density meant lower market economy for electrification usage. The REA philosophy was to provide the initial capital and the tools – low interest loans and support systems for the engineering development.

With this kind of support from the REA, local communities were able to provide electricity to their areas while maintaining a tremendous sense of local ownership. The government provided technical and financial assistance, but the local community retained responsibility for development and delivery. Through this arrangement, the local community also had control of the system, developing it according to their own local priorities and initiatives.

Low interest loans with local control provided a key element of sustainability to the rural electrification projects. If the government had made individual grants for development, it would have been much less likely that the communities could have or would have continued the programs once the grant was gone. According to Nebraska historian, Dr. Robert Manley (1994), human and financial resources from local areas provide a key link to the success of new technologies in a community. Indeed, Dr. Manley uses electrification as an example of how local initiative and imagination created successful integration of a new technology which otherwise would have been ignored in a remote area.

Don Macke, Director of the Nebraska Rural Development Commission, stresses the importance of capacity building programs rather than funding one-time flash-in-the-pan projects. While federal programs in recent years have focused more on the politically popular, high visibility big deal projects, Macke senses a turnaround in institutional thinking. Ironically, however, the impetus is not coming from the REA, where limited financial resources make capacity building projects difficult. Two institutional groups are currently the primary sources of rural development funding: private groups such as the Mott, Kellogg, and Ford Foundations; and the United States Department of Agriculture (USDA). Macke sees a shift among both these groups toward increased support of systemic community based approaches — taking the limited dollars to increase local capacity.

"It's the old theory of teaching the people to fish rather than giving them the fish for some indefinite period. Current USDA leaders have shown a willingness to look at long term approaches" (Macke, personal communication, April 26, 1995).

The current trend toward the development of local community information networks is an outstanding example of applying the early REA program model to information infrastructure development. Community information networks provide direct information services to the local community based on local interest and local need. The most successful networks are usually built by people from within the community rather than by out-of-town entrepreneurs. This type of network is also developed with local users in mind, neighbors train neighbors, and grass roots support is generated from successful use. Community information networks might provide local information such as school and community calendars, local city ordinances, and a linkage to the local library collection. In addition, the community network can offer a gateway to broader networks such as the Internet.

Mario Morino did an excellent job of articulating the need for local telecommunications networks in his talk, "Assessment of Evolution of Community Networking," presented at the May 5, 1994 *The Ties that Bind* conference.

Our local communities are facing many challenges — from economic underdevelopment, to insufficient access to healthcare, to illiteracy, to homelessness, to school dropouts, to political apathy. Electronic communications can help the people working to solve these problems by helping them reach more people, find and share more information, generate new ideas and work collaboratively. It can also exacerbate these and other social problems if people become disenfranchised through lack of skills or lack of access to these same communication lines. We believe that most social challenges like these will best be mastered at the local community level. That is where individuals see and feel the true nature of the problem, where they have the confidence of their neighbors, where they can feel personally involved and where they can grasp workable solutions to immediate challenges.

Can we apply the REA model of the 1930s to our current development needs? Absolutely. Current assistance programs should follow the successes of the 1930s programs, supporting infrastructure development through the encouragement of local capacity building. The Clinton-Gore administration has made the National Information Infrastructure initiative a priority, and has created assistance programs through the National Telecommunications and Information Administration, the USDA, and other federal and state programs.

But “infrastructure” is such a nebulous term — so hard to define as we look at the development of technology and communications. One framework for the discussion of infrastructure which could apply to both rural electrification and to the information infrastructure includes three components: products, pipelines, and people. There must be products to deliver (electricity, software, information, virtual community, etc.). In order to enable the delivery of products, we must have pipelines. Pipelines can be physical, such as water lines, electricity wires, or optical fibers, or they could be virtual, such as the air waves. Finally — and most importantly — we need people. We need people not only as consumers, but also as trainers and communicators. We must have trained and educated people who can develop the products, create and maintain the pipelines, and who can create and maintain community. Federal assistance must focus on the development of each of these areas for long term infrastructure health.

As we look back to the story of the early REA initiatives, we must use current funding opportunities to create a new story of global linkages through interdependence — strong individual units helping one another through federal support and connections. The three key priorities of reliability, affordability, and equity of access could be realized through the development of such interdependence. Sustainability could be realized through a variety of imaginative combinations of free and for fee services available via networks. The infrastructure components of products, pipelines, and people also provide sustainability; once programs are in place to facilitate development and training, ongoing evaluation and reassessment will help ensure ongoing success.

Just as electrification brought dramatic changes to life in America, so also will telecommunications dramatically impact our lives. We must look very seriously at the new infrastructure development, and choose a path parallel to a successful path from our nation's history. It is the responsibility of our government to enable sustainable networking at the local level — in both urban and rural communities — to continue equitable access to progress in our nation.

Bibliography

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