Approved: 1-25-96
Date

MINUTES OF THE HOUSE SELECT COMMITTEE ON TELECOMMUNICATIONS.

The meeting was called to order by Chairperson Doug Lawrence at 1:30 p.m. on January 16, 1996 in Room 313-S of the Capitol.

All members were present except: Rep. Greg Packer - excused

Committee staff present: Lynne Holt, Legislative Research Department
Mary Ann Graham, Committee Secretary

Conferees appearing before the committee:

Others attending: See attached list

The meeting was called to order at 1:30 p.m. by Chairman Doug Lawrence. The minutes of the January 9, January 10, and January 11, 1996 meetings were distributed to committee members. Representative Beggs moved the minutes be approved, and Representative Holmes seconded. Motion passed.

The Chairman reminded anyone working the committee to register their name, firms name, who they represent and phone number with the committee secretary if they are interested in being included in a directory for the committee members.

Also, the Monday, January 22 meeting is scheduled for bill requests from anyone that would like to introduce a bill to this committee.

January 31 has been tentatively scheduled, subject to approval of some of the appropriate personnel in the Legislature, a presentation by the consultant that wrote the underpinnings for the Telecommunications Strategic Planning report. This is not an official date at this point but would like everyone to be aware of the upcoming date.

Chairman Lawrence introduced Lynne Holt, Legislative Research Department, to brief the committee on what has been an eighteen month process of study with the Telecommunications Strategic Planning Committee. She will be conducting this briefing today and tomorrow, January 17.

Ms. Holt distributed a copy of the Final Report of The Telecommunications Strategic Planning Committee. (See Attachment 1) Other documents given for review were a Kansas Project Flow Chart , (See Attachment 2) a copy of Capitol to Capitol, an information service of NCSL assembly on Federal issues (See Attachment 3) After the briefing Ms. Holt asked if there were any questions.

The Chairman encouraged the committee to try to review all of the material distributed to them and that Lynne Holt will be briefing on the same report again in tomorrow's meeting.

The meeting adjourned at 3:00 p.m.

The next meeting is scheduled for January 17, 1996

SELECT COMM. ON TELECOMMUNICATIONS
COMMITTEE GUEST LIST

DATE: 1-16-96

NAME	REPRESENTING
John D. Pinegar	State Independent Telephone Assn.
Jim Green	KDHE
David Breit	KCC
Tera Powers	MCI
Glenda Cafer	KCC
Nelson Krueger	Menninger - K.C. Fibernet
STEVE KEARNEY	KINI L.C.
Tom Bruno	Allen & Assoc.
Charley Young	Via Christi Regional Med. Cent.
Catharine A. Lauer	private citizen
BILL BLAES	Southwestern Bell
DENNY KOCH	SW BELL TEL.
Bill Drexel	SWBT
JASON PITSENBERGER	BRAD SMOOT
WALKER HENDRIX	CURB
M Clamushealx	Classic Communications
Ron Hein	" "
Amy Campbell	Rebecca Rice
Mike Reecatt	AT+T

SELECT COMM. ON TELECOMMUNICATIONS
COMMITTEE GUEST LIST

DATE: 1-16-96

NAME	REPRESENTING
George Barbee	Barbee & Assoc.
Rob Hodges	KTA
Debra Peterson	Sprint
Tom Day	KCC

CONNECTIONS TO THE FUTURE:
A TELECOMMUNICATIONS STRATEGIC PLAN FOR KANSAS

FINAL REPORT OF

THE TELECOMMUNICATIONS STRATEGIC PLANNING COMMITTEE

To The Governor, The 1996 Legislature, and
The Kansas Corporation Commission

January, 1996

House Sel/comm. Telecomm
1-16-96
Attachment 1

TABLE OF CONTENTS

Minority Reports

A. David Brevitz – Representative of the Kansas Corporation Commission
B. David Jones, CGI; Mike Reecht, AT&T; and Robert Weary, Weary, Davis, Henry, Struebing, and Troup Law Offices
C. Richard Veach, Pioneer Telephone Association; Kendall Mikesell, Southern Kansas Telephone Company; and Melanie Fannin, Southwestern Bell Telephone Company
D. Neil Woerman

EXECUTIVE SUMMARY

The 1994 Legislature adopted S.C.R. 1627, which established the Telecommunications Strategic Planning Committee and charged it with the responsibility of developing a statewide strategic plan for telecommunications. The adoption of this resolution occurred at approximately the same time as enactment of legislation (1994 H.B. 3039) to extend for an additional two years, until March 1, 1997, the alternative regulatory scheme (commonly referred to as "TeleKansas II") governing Southwestern Bell Telephone Company in Kansas.

In accordance with provisions of S.C.R. 1627, the Telecommunications Strategic Planning Committee included six legislators, a representative from the Division of Information Systems and Communications (Department of Administration), a representative from the Kansas Corporation Commission, and one representative appointed by the Legislative Coordinating Council from each of the following: certificated facilities based interexchange carriers, certificated resellers, certificated large local exchange carriers, certificated small local exchange carriers, cable companies, medical centers, residential end users, large businesses, and small businesses. (Committee members are listed on pages 2-3 of the report.) The 17 Committee members met over an 18-month period to formulate the statewide strategic plan for telecommunications, reflected in this report.

The Committee's efforts were assisted by a matching grant received by the Kansas Corporation Commission from the National Telecommunications and Information Administration of the U.S. Department of Commerce. This grant enabled the Legislative Coordinating Council, upon recommendation of the Committee, to engage a consulting firm – Weber Temin & Company/DCI (formerly T.E.L.A. Group/DCI) to assist the Committee and staff in fulfilling the obligations outlined in the resolution.

The scope of the Committee's work is described in some detail in the 11 chapters of the ensuing report. Essentially, the Committee identified:

- the telecommunications technologies and services that currently exist;
- the telecommunications applications Kansans want now and anticipate that they will want within the next few years;
- the telecommunications applications that should be part of Kansans' collective vision for the next century;
- the capacity of telecommunications providers to support the applications identified in the vision statement;
- the policy framework necessary to move toward a realization of that vision;
- the mechanisms to encourage widespread delivery of telecommunications services identified in the vision statement; and
- the economic impact of telecommunications on job retention and creation.

The Committee gained much of its information about existing technologies and services and the applications Kansans want from reports submitted by Weber Temin & Company/DCI. (Some information on user needs was also presented to the Committee at two meetings throughout the 18-month period.) Information concerning the economic impact of telecommunications on job retention and creation in Kansas came primarily from a report submitted by Dr. Peter Temin. Subcommittee deliberations were largely responsible for the refinement of a vision statement (to be introduced to the 1996 Legislature in the form of a resolution), and for the development of a proposal to encourage the ubiquitous delivery of telecommunications services, the dissemination of information to all Kansans about new and emerging telecommunications services, and the means of gaining reasonable and affordable access to them. The Committee recommended that this proposal take the form of a bill, to be introduced to the 1996 Legislature.

The issue which exacted the most time and debate from Committee members was the formulation of the policy framework. S.C.R. 1627 required the Kansas Corporation Commission to establish "one or more generic dockets to investigate the level of competition for each regulated or flexibly regulated telecommunications service under its jurisdiction." The resolution also directed the Telecommunications Strategic Planning Committee to take the findings of the Commission, as well as input from other sources, and craft a strategic plan for telecommunications in the state that would include "recommendations to the Governor, the Legislature, and the Corporation Commission on key concepts and changes to be incorporated into state regulatory policies."

With assistance from the consultants, the Committee developed a policy framework for telecommunications in Kansas. The purpose of the *Policy Framework* is to "encourage competition in all markets, with a transition from monopoly as rapidly as possible consistent with consumer benefit and industry stability and stimulate with incentives the construction of an advanced telecommunications infrastructure, so as to meet all current and future needs in a prudent and economical manner, while protecting universal service, so as to ensure that telecommunications service is available at affordable rates throughout Kansas." There are many objectives in this statement of purpose – competition, transition from monopoly to competition, industry stability, an advanced telecommunications infrastructure, and the protection of universal service which embraces both the availability and affordability of services. The *Policy Framework* articulates the Committee's recommended approach for realizing those key objectives in a comprehensive and interrelated manner.

However, in formulating the *Policy Framework*, the Committee noted that any transition to competition from monopoly status will not be smooth and that increasing competition will provide Kansans with advantages but also with certain complications. The Committee also noted that there is unanimity among all telecommunications providers that effective competition for all services in the local exchange market – specifically, at a minimum, for local switched residential and single-line business services – does not exist today. Nonetheless, there was understandably a difference of opinion among the various telecommunications providers as to the most appropriate standards for defining "competition," the existing level of competition for given services in Kansas, and the necessary conditions that must exist to ensure a "level playing field" among providers to promote competition. This difference of opinion characterized many of the Committee's deliberations on the *Policy Framework* and, to a large degree, explains the inclusion of the minority reports appended to the Committee's report.

The Committee's activities on the *Policy Framework* did not occur within a vacuum. Simultaneously, and as intended in the resolution, the Kansas Corporation Commission addressed many of the same issues and Commission staff updated the Committee on the status of various Commission

proceedings throughout the 18-month period of Committee deliberations. In addition, pending federal telecommunications legislation, which was still in conference committee at the time the Committee reviewed this report, loomed conspicuously in the background.

Despite the inconclusive nature of the federal legislation and the lack of consensus that exists with respect to making the transition to a competitive telecommunications environment, the Committee believes that the issues presented in this report will continue to dominate the agenda. These issues can be viewed in the continuum of: available and projected telecommunications services; the existing and projected telecommunications needs of Kansans in areas of education, medicine, business, government, and economic development; the nexus between existing and anticipated user needs and existing and projected telecommunications services; the best means of stimulating industry investments to ensure the availability of such services, at affordable rates, throughout the state; the regulatory policies that are most suited to encourage the deployment of desired facilities and services; and the implications of regulatory change for incumbent local exchange carriers, entrant telecommunications providers, and ultimately, *all* Kansas consumers of telecommunications services.

BACKGROUND

Authorizing Resolution, Committees, Consultants

The following report summarizes the work of the Telecommunications Strategic Planning Committee, which was established by 1994 S.C.R. 1627.

Senate Concurrent Resolution No. 1627

The 1994 Legislature adopted S.C.R. 1627, which established the Telecommunications Strategic Planning Committee (TSPC) and charged it with the responsibility of developing a statewide strategic plan for telecommunications. (See **Appendix I** for a copy of the resolution.) The adoption of this resolution occurred at approximately the same time as enactment of legislation (1994 H.B. 3039) to extend for an additional two years, until March 1, 1997, the alternative regulatory scheme governing Southwestern Bell Telephone Company in Kansas. The extension of this alternative regulatory scheme is commonly referred to as "TeleKansas II." (**Appendix II** is a copy of the legislation extending TeleKansas.)

The intent of the resolution was for the TSPC and the Kansas Corporation Commission to use this extension period to formulate an approach toward relaxed regulation which, to use the words of the resolution establishing the TSPC, "would be accomplished in a systematic and logical manner based on accurate information, public analysis and debate." The resolution required the Commission to establish "one or more generic dockets to investigate the level of competition for each regulated or flexibly regulated telecommunications service under its jurisdiction." The resolution also directed the TSPC to take the findings of the Commission, as well as input from other sources, and craft a strategic plan for telecommunications in the state that would include "recommendations to the Governor, the Legislature, and the Corporation Commission on key concepts and changes to be incorporated into state regulatory policies." In addition, the resolution specified that the TSPC conclude its work by January 1, 1996 and submit a final report to the Governor, the 1996 Legislature, and the Kansas Corporation Commission. The Commission was not given a deadline for completion of its investigations of the various issues related to competition but has completed Phase I of competition implementation and has a tentative schedule in place to complete the process by March 1, 1997 (the termination of TeleKansas II). The Commission's work will address:

1. a framework to promote competition;

2. an optional alternative regulatory mechanism for local exchange companies (LECs); and

3. a means for continued support of universal service (to be established in early 1996) for all telecommunications providers regardless of status. (The Commission's activities to that end are described in greater detail in Chapter VIII.)

One provision of the resolution was a directive to the Kansas Corporation Commission, in cooperation with the Department of Administration, to submit to the National Telecommunications and Information Administration (NTIA) of the U.S. Department of Commerce an application for a state telecommunications planning grant on or before May 12, 1994. The Kansas Corporation Commission

was successful in securing federal funding in October 1994, and that funding, supplemented by state monies and in-kind support, enabled the Legislative Coordinating Council, upon recommendation of the TSPC, to engage a consulting firm – Weber Temin & Company/DCI (formerly T.E.L.A. Group/DCI) – to assist the Committee and staff in fulfilling the obligations outlined in the resolution.

Committee Members

The resolution specified the general composition of the membership and the method of appointment (see Appendix I). The 17 members included:

Senator Alicia Salisbury, Chairperson
Senator Christine Downey
Senator Paul Feleciano, Jr.
Representative George Dean
Representative Fred Gatlin
Representative Greg Packer
Dave Brevitz, Kansas Corporation Commission
Melanie Fannin, Southwestern Bell Telephone Company
Dave Hack, Yellow Freight
Don Heiman, Division of Information Systems and Communications
David Jones, CGI
Kendall Mikesell, Southern Kansas Telephone Company
Mike Reecht, AT&T
Richard Veach, Pioneer Telephone Company
Robert Weary, Weary, Davis, Henry, Struebing and Troup Law Offices
Ray Williams, Sumner Regional Medical Center
Neil Woerman, Office of the Attorney General

During the 18-month period of Committee activity, there were three changes in membership: Dave Brevitz replaced Don Low as the member representing the Kansas Corporation Commission; Don Heiman replaced Andy Scharf as the member representing the Division of Information Systems and Communications; and Representative Greg Packer replaced Representative Gary Haulmark who resigned his legislative seat. Prior to his appointment as Committee member, Dave Brevitz assisted the Committee by doing much of the "leg work" to finalize the application which was submitted to NTIA and by providing staff support. Andy Scharf continued to support the Committee in a staffing capacity after being replaced by Don Heiman. Other Committee staff included Lynne Holt and Raney Gilliland, both Principal Analysts in the Kansas Legislative Research Department, and Betty Bomar, Committee Secretary.

Subcommittees

In the course of the Committee's work, Chairperson Salisbury appointed four subcommittees to assist in project implementation. (**Appendix III** is a list of members assigned to each subcommittee.)

The first subcommittee was responsible for: developing a Request for Proposal to engage a consultant; formulating evaluation criteria for the bids and subsequently evaluating the bids submitted

by prospective consultants; and, finally, selecting three finalists to be interviewed by the full Committee. This subcommittee worked intensively from August through mid-October 1994 to complete its work.

The second subcommittee was assigned to make recommendations on the best method of proceeding with the project in light of the dissolution of the T.E.L.A. Group. This subcommittee met in March and April 1995 to formulate its recommendations and a report to the full Committee, which was submitted on April 19. In accordance with the subcommittee's recommendations, the Legislative Coordinating Council terminated the contract with the T.E.L.A. Group/DCI and entered into a new contract with Weber Temin & Company/DCI on April 28, 1995.

The third subcommittee was responsible for assisting DCI in providing contacts for the user needs survey. This subcommittee's work was completed in May 1995.

The fourth subcommittee was assigned the task of identifying applications for telecommunications of importance to the state and a method of setting priorities for their development, including a method of promoting development. In addition, this subcommittee was asked to consider and recommend a viable method of coordinating applications for NTIA grant applications and similar initiatives. Another task of the subcommittee, as required in the resolution, was to recommend a process for informing end users about the use and availability of new technologies associated with identified applications. This subcommittee included four Committee members and five members external to the Committee, who were appointed by Chairperson Salisbury in recognition of their expertise in certain telecommunications applications. The external members included: Fred Boesch, Chief Information Architect, Kansas Council on Information Resources; Melissa Hungerford, Kansas Hospital Association; Duane Johnson, State Librarian; Denise Moore, Department of Education; and Barb Paschke, Board of Regents. The subcommittee met six times in late September through October 1995 and submitted a report to the full Committee at its meeting on October 27.

Consultants

S.C.R. 1627 authorized the Legislative Coordinating Council to contract with a consultant to provide technical assistance, frame policy issues, and draft necessary Committee reports. The consultant engaged by the Legislative Coordinating Council, upon recommendation of the TSPC, was T.E.L.A. Group. T.E.L.A. subcontracted with a management consulting firm headquartered in Vermont called DCI to conduct the *Telecommunications User Needs Assessment.* In the course of its consulting work, T.E.L.A. Group dissolved and reconfigured as Weber Temin & Company.

The coordinator of the project was Joseph Weber, based in New Jersey, who was an engineer with nearly 30 years of experience in telecommunications with AT&T and Bell Labs. His involvement with state telecommunications infrastructure planning included formulation of technical recommendations for an infrastructure development plan for the State of Connecticut and authorship of an infrastructure development plan for the State of Tennessee. Mr. Weber also provided analysis and testimony concerning specific proposed service upgrades and the pace of new technology deployment in New Jersey.

Dr. Peter Temin, a partner with Mr. Weber of Weber Temin & Company, is a Professor of Economics at the Massachusetts Institute of Technology (M.I.T.). He is author of the book *The Fall of the Bell System: A Study in Prices and Politics* (Cambridge University Press, 1987). His experience included, on behalf of the Connecticut Department of Public Utility Control, providing advice and analysis concerning the impact of telecommunications on economic development in Connecticut and

providing testimony before a joint committee of the New York Legislature on the impact of public policy choices on economic development and, specifically, on the growth of cellular services in the state.

Mr. Weber and Dr. Temin used the legal expertise of Clifton A. Leonhardt, the former Chairman and former commissioner of the Connecticut Department of Public Utility Control, to draft their final version of the *Proposed Policy Framework for Telecommunications in Kansas* (August 31, 1995) which the Committee used as the basis for formulating its final recommendations on regulation.

Philip A. Doherty, head of DCI, has 30 years of utilities management consulting experience, including experience with numerous management audits of regulated telecommunications companies throughout the United States. He subcontracted with the Docking Institute of Public Affairs at Fort Hays State University under the direction of Mark Bannister to complete the survey work necessary for the *Telecommunications User Needs Assessment.*

Weber Temin & Company/DCI (hereafter referred to as the consultant) issued eight reports (some in several versions), all of which are on file in the Kansas Legislative Research Department. The date of the final version of each report is listed.

Evolving Services and Technologies (April 1, 1995)

Telecommunications Policy Issues: Competition, Interconnection, Pricing, Universal Service, and Infrastructure Deployment (April 19, 1995)

Theory and Practice of Price Caps (May 9, 1995)

A Dozen Proposals (later became *A Proposed Policy Framework for Telecommunications in Kansas*; May 10, 1995; final version August 31, 1995)

A Dozen Proposals: Expanded and Compared with the KCC Competition Order (June 14, 1995)

Potential Use of Government Networks (August 10, 1995)

Economic Aspects of Telecommunications Development (August 16, 1995)

Telecommunications User Needs Assessment (three volumes) (October 25, 1995)

CHAPTER I

Scope of the Committee's Activities

The Telecommunications Strategic Planning Committee (TSPC) held its first meeting on July 15, 1994 and concluded its work on December 18, 1995, with proposed final recommendations on this report. For the most part, the Committee met on a monthly basis. **Appendix IV** is a time line of: its activities, the consultant's reports, and the activities of the Kansas Corporation Commission related to competition.

The scope of the Committee's work is outlined in the resolution and is organized in this report as follows:

1. **Definitions for certain telecommunications technologies and services, many of which are referenced throughout the remaining chapters of this report.** Included in **Chapter II**, these definitions come from an array of sources, including the consultant's report on *Evolving Services and Technologies*. A list of major telecommunications terms is contained in **Appendix V**.

2. **Identification of what telecommunications applications Kansans want.** These needs are addressed in the *Telecommunications User Needs Assessment* summarized in **Chapter III.**

3. **Articulation of *A Vision of Kansas Telecommunications for the 21st Century*, which reflects those needs found to be of greatest importance in the *Telecommunications User Needs Assessment*.** This vision statement is included in **Chapter IV.**

4. **The capacity of telecommunications providers to support the applications identified in the vision statement.** This information is derived from the consultant's report *Evolving Services and Technologies* and other information provided to the Committee and staff. This information is contained in **Chapter V.**

5. **The recommended policy framework to encourage competition, stimulate the construction of an advanced telecommunications infrastructure, and protect Universal Service.** Background is provided in **Chapter VI** regarding the need for a strategy to promote greater competition of historically regulated telecommunications services. The Committee's *Proposed Framework for Telecommunications in Kansas* in **Chapter VII** suggests the necessary steps to be taken to effectively make the transition from a monopoly toward greater competition. An explanation of the proposed regulatory framework, in conjunction with recommendations stemming from several ongoing investigations of the Kansas Corporation Commission, can be found in **Chapter VIII**.

6. **Mechanisms to encourage the ubiquitous delivery of services identified in the vision statement.** Even though the Committee assumes that a proper regulatory environment should provide many of the incentives needed to support the applications considered to be priorities for Kansans, the Committee acknowl-

edges that there inevitably will be "gaps" to ensure that all Kansans have information about, and reasonable and affordable access to, new and emerging services. Therefore, a Telecommunications End-User Support Fund and a mechanism for providing technical assistance, in the form of an information clearinghouse, are recommended (see discussion in **Chapter IX.**)

7. **The economic impact of telecommunications on job retention and creation in Kansas.** The resolution called for an economic impact analysis and, to that end, Dr. Temin presented a report titled *Economic Aspects of Telecommunications Development.* The findings of that report and a case study of a Kansas company located in the vicinity of Great Bend (profiled by Rod Thomasson and Jay Gillette of the Docking Institute of Public Affairs, Fort Hays State University) form the body of **Chapter X.**

8. **A summary of Committee recommendations for the 1996 Legislature, including proposed legislation and a proposed resolution.** This summary is included in **Chapter XI.**

CHAPTER II

What Does All This Telecommunications Jargon Really Mean?

Telecommunications is the transmission of information over distance. Information is first encoded, then transmitted through media, such as wires, cables, or the electromagnetic spectrum, and finally decoded at its destination. Voice, data, or video messages may move through any of the various media as either an analog or digital signal. In order to understand what technologies telecommunications providers currently supply and will be able to supply in the foreseeable future to meet Kansans' needs, one needs a few definitions. As there are many technical words throughout the text, also refer to Appendix V for definitions.

Analog vs. Digital Transmission

Telecommunications providers are all in the process of shifting from analog to digital transmission, if they have not already done so. As the terms "analog" and "digital" will continue to resurface throughout the report, an understanding of their meanings is necessary. The definitions used in the consultant's report on *Evolving Services and Technologies* seem most apt:

> Analog transmission is so named because an electrical wave analogous to the sound wave or other stimulus is transmitted over a communications line. This was the basis of the telephone. Pressure waves in the air fell on a diaphragm which in turn generated an electrical signal that followed the form of the original. At the receiving end, the process was reversed. This simple signal worked well, but one of the problems was that over long distances, the signal would weaken and need to be regenerated, which would add noise. Hence the relatively noisy long distance calls we all remember.
>
> Some time ago, it was discovered that these analog waveforms could, by appropriate means, be transformed into numbers representing the amplitude of the wave and discrete points in time, which, when received and interpreted, could exactly reproduce the original waveform. Furthermore, as is done in computers, these numbers could be represented by binary digits, or strings of ones and zeros. Although there were some complications and costs to do this, it would now be possible to transmit a signal with virtually no impairment, since, in order to regenerate the signal, it was necessary to know whether it was "one" or "zero," a decision that could almost always be made correctly unless there was severe impairment on the line (in which case the transmission would be virtually unintelligible in any event). Furthermore, with the signal in this form, it could be "processed" by computers to do many things, such as reduce the bits required for a given application (compression) or make it immune to eavesdropping (encryption). Finally, the implementation of such systems played very well with the ongoing development of digital microelectronics, which was in turn stimulated by the computer industry, where everything always has been digital.
>
> Digital systems now have a happy confluence. By using them, we can enjoy a wide variety of high quality, flexible services with rapidly falling prices. Therefore, that's where everything is going in this business.

Analog vs. Digital Switching

Switching equipment is equipment located in a telephone company's central office which routes a call from the calling customer to the customer receiving the call. It is the location of what is referred to in the telecommunications industry as "intelligence." Analog switching equipment can take the form of electromechanical equipment still used by a few telephone companies and electronically controlled equipment, such as the 1AESS switches operated by the Bell companies. The latter is a full function switch which supports virtually all voicegrade and call management features (automatic callback, selective call forwarding, caller ID, etc.), currently available in most places.

All new switching equipment manufactured and installed today is digital. These switches are controlled by software and are often capable of supporting all voicegrade and switched video services. Particularly attractive to rural regions is the "host-remote" architecture of digital switches. Much of the intelligence is contained in the "host" switch which, in combination with simpler and less expensive "remote" switches, supports multiple services to smaller communities in the region. Almost all the independent local exchange carriers (ILECs) in Kansas have digital switches. Sprint/United currently has 30 percent of its lines served by electromechanical analog switching. The remaining 70 percent of its lines are served by digital switching.

Transmission Media

Twisted Pair. Twisted pair has been in use for 120 years, thus making it the oldest technology used in telephone networks. It is made up of pairs of wires collected in cables. It is currently used primarily to connect the customer to the point of concentration which can be a switch, a wire center, a radio transmitter site, or a remote terminal. In general, all LECs have twisted pair technology for local distribution transmission.

Coaxial Cable. Coaxial cable is generally the transmission medium of cable television (CATV) companies for cable television distribution. Coaxial cable consists of a central metallic conductor surrounded by a metallic outer sheath. It was originally designed for transmission of analog signals, although it can accommodate digital transmission.

Optical Fiber. Optical fiber is the newest and most robust of all transmission media. It is composed of thin glass strands through which light beams are transmitted. This medium has greater transmission capacity and is prone to less interference than is coaxial cable. In fact, optical fiber has virtually unlimited carrying capacity, which is constrained only by the electronic equipment at the terminals. Virtually all carriers use optical fiber to connect their offices. LECs are beginning to use it in the "feeder" section of the loop plant (the outside plant facilities necessary to connect the customer to the switch), although most of the loop connection still consists of a twisted pair of wires. CATV companies can use optical fiber in their backbone routes and that medium affords them the capacity, once authorized and if other factors permit, to provide telephony. Optical fiber also enables these companies to support high speed data transmission and interactive video. Competitive Access Providers (CAPs), which are companies that compete with LECs to provide access to long distance services and other local communications service, use optical fiber as well as microwave networks as their transmission media. Examples of certificated CAPs in Kansas include Kansas City Fibernet and Multimedia Hyperion. CAPs have recently become authorized to provide private line and special access service in metropolitan areas in Kansas.

Radio – Cellular. Radio communications services are a means of transmitting information. This can be accomplished through the use of land mobile telephones and, much more commonly, through cellular phones. Cellular service is a wireless radio service in which a geographic area is subdivided into small "cells," each served by a separate transmitting/receiving tower or cell site that provides service in its area or cell. Calls are handed off from one cell site to the next as the user moves between cells. Because of the great advantages users associate with mobility, growth in the cellular market has been striking in the past decade. Worldwide, one new telephone subscriber in six purchases a mobile phone. Cellular companies primarily use analog equipment today, but they are starting to install digital gear for both voice and data transmission.

Radio – PCS. The next generation of wireless technology is commonly referred to as Personal Communications Services or PCS. In 1994, the Federal Communications Commission (FCC) began allowing companies to bid for licenses to construct a new kind of microcellular network. Licenses have been auctioned for narrowband PCS, which can be used for high data-rate, two-way paging and for broadband PCS, which can be used for voice telephony. PCS will use low-power, high frequency radio waves. Microcells used for PCS theoretically will be much smaller and more closely spaced than the cells used by conventional cellular operators. PCS phones are expected to use less power and smaller batteries than cellular phones, thus reducing size and costs. Low power also means the ability to use the entire frequency repeatedly in each microcell-transmission area. This is in contrast to cellular operators who must avoid using parts of their allotted frequency to prevent radio interference with calls in adjoining cells. PCS is proposed to be all digital from the outset, and will be designed for sending data (including faxes) as well as voice.

Radio -- Satellite. Two types of satellite technologies warrant mention here – synchronous satellite and Low Earth Orbit (LEO). Synchronous satellites are high altitude satellites (23,000 miles high) that are stationed at apparently fixed points over the equator. They could be used for television distribution – from remote sites to network head ends; from program distributors to cable company head ends and local television stations, and directly to end users. They also could be used for telephone service to hard-to-reach places, although this application is considered undesirable because of delay problems.

LEO satellites are not located at as high an altitude as are synchronous satellites – only a few hundred to a few thousand miles high. These satellites move very rapidly relative to the earth, and earth stations must be able to track them and switch from one to the other as they appear and disappear over the horizon. They do not have the delay problems of synchronous satellites. In one system under development, high-power portable phones will connect directly to LEO satellites. The satellites will switch the signals among themselves as needed and then bounce those signals back to the earth. These satellites will be capable of directly transmitting calls between people with the same type of phones or the right kind of pagers. Other calls will move from the satellites through ground stations and then into the wired phone network to reach their final destination.

SS7

SS7 is Signaling System 7, which is a signaling protocol or platform for network control. (A *protocol* is defined as very specific rules or standards for information transmission.) This signaling protocol carries information about calls or data transmitted across the telecommunications network using a dedicated, high speed digital network which is functionally different from the network carrying the customer's voice or data traffic. Consumer benefits of the SS7 network include: much faster call establishment (set up); virtual elimination of toll fraud; dynamic management of the network during

abnormal conditions; rapid verification of credit cards (thus reducing fraud); and provision of 800 number portability. In addition, SS7 is a prerequisite for call management services, which include CLASS services (such as "Caller ID"), single number calling, and number portability, which permits a customer to retain the same telephone number regardless of the provider of the local telephone service. CLASS services are supported by digital switches equipped with software for SS7.

ISDN

ISDN is an acronym for Integrated Services Digital Network. ISDN is a switched network design which enables voice, data, imaging, and video to be delivered digitally over existing phone lines to the customer. SS7, discussed above, is a signaling protocol that enables communications to occur between central offices in an ISDN network.

ISDN services include basic rate and primary rate. (A third type of ISDN service – broadband – is discussed below.) Each ISDN line has three separate communications channels. Basic rate ISDN has two main communications channels that can be used for normal voice telephone service or to send and receive data, fax, or video at 64 kilobits a second per channel. The third channel (16 kilobits per second) is often used to manage communications. Primary rate ISDN provides 23 high-speed digital circuits of combined voice and up to 1.544 megabits of data. Primary rate ISDN is considerably more expensive than basic rate ISDN; on average, the price of a basic rate ISDN circuit is $54 a month, whereas primary rate ISDN circuits cost $1,050 monthly (**Source:** *Government Technology*, September 1995).

The reason for the additional expense is that ISDN requires specialized equipment at the customer's premises that encodes information in a digital format. In addition, the loop to the customer's premises must be conditioned for ISDN services. Each line must be terminated in an appropriate line card to the switch and the network switches must be digital with appropriate software to handle ISDN customers.

Data transmission, rather than voice, is the primary reason individuals, businesses, and government agencies are using ISDN, and ISDN has the capability of providing customers with high quality voice and simultaneous data communications. As noted below, almost every group of user surveyed in the *User Needs Assessment* expressed an interest in data transmission. However, ISDN is not deployed evenly throughout the country. With respect to large LECs nationwide, the amount of ISDN availability as a percentage of total access lines ranges from 90 percent (Bell Atlantic) to 18 percent (GTE). SBC Communications (Southwestern Bell's parent company) reports 66 percent. (**Source:** Dataquest)

Broadband

The term *broadband* generally refers to the transmission of digital signals at a rate of 45 megabits or greater although the rate of transmission could be far less. A single broadband facility can carry 672 voice conversations. Providers of broadband services may include cable companies, telephone companies, or CAPs. Like narrowband services, broadband services can be distributed through the spectrum through terrestrial links (links on land) or satellite links. (With respect to radio communications, a *spectrum* is a finite resource that is allocated; certain frequencies are more suitable for certain applications than for others.) Deployment of broadband technologies will allow emerging services and applications of the network to handle voice, data, image, and high quality video services

in a variety of new ways. Included under the rubric of the "broadband telephone network" are three terms that crop up in literature on telephony:

1. Bandwidth on Demand – this service enables end users to temporarily increase the network's capacity for the duration of the call to move to a higher volume of data or to increase the quality (resolution) of a particular video transmission;

2. the Synchronous Optical Network (SONET) – this industry standard format enables the transport of a wide range of digital telecommunications service over optical fiber facilities through the telephone network;

3. Asynchronous Transfer Mode (ATM) switching – a very high capacity switching platform which is used to provide high performance broadband switching.

Broadband technologies are particularly useful for supporting high quality two-way interactive video and high-speed data transmission applications, which are considered to be of great importance in the education, health care, and library communities, among others. In Kansas, broadband technologies are in the initial stages of deployment.

For all practical purposes, broadband ISDN is really a network of the future. Its great appeal is its transmission capacity and it will be able to envelop transmitted information using SONET and ATM switching capabilities. However, much of the discussion of ISDN in the literature and all references to ISDN in Chapter VII on the proposed regulatory framework refer to basic rate and primary rate ISDN, discussed above, with greatest emphasis placed on the ubiquitous deployment of basic rate ISDN.

CHAPTER III

What Do Kansans Want?

The Telecommunications Strategic Planning Committee (TSPC) took three approaches to identifying what Kansans want:

First, two Committee meetings were held on August 19, 1994 and on July 12, 1995 to give Committee members a broader understanding of existing needs for telecommunications services and barriers to service provision in Kansas. Information was presented on the following: distance learning (both K-12 and postsecondary education), telemedicine, library services, telecommunity services, access to Internet providers, classroom curricula integrating new technologies, and telecommunications services for persons with special needs, such as the visually impaired. Some information on: (1) barriers to affordable access to Internet providers and (2) use of cable technology to assist the homebound elderly with their medical needs was also provided to the subcommittee assigned to set application priorities.

Second, on June 15-16, 1995, several Committee members, consultants Mr. Weber and Mr. Doherty, and staff from the Kansas Legislative Research Department made a tour of five facilities (telecommunications providers and users) in rural Kansas, including: the Community Hospital at Onaga; Moundridge Telephone Company, KINI L.C.; Rural Telephone Service Company in Lenora; the Gateway Center in Oberlin; and Northwest Kansas Technical School in Goodland.

Third, the Committee provided input on the DCI project involving the *Telecommunications User Needs Assessment.* Chairperson Salisbury also appointed a subcommittee to work with DCI to identify contacts for the surveys that were conducted to assess users' needs. A brief summary of the salient findings of the *Assessment* follows.

Telecommunications User Needs Assessment

The primary intent of the *Telecommunications User Needs Assessment* was to determine the range and the level and quality of service desired by telecommunications users in Kansas. An important related objective, as stated in the *Assessment,* was to determine the degree of importance of telecommunications in social and economic development in Kansas. The objectives outlined for the study were the following:

- identify and qualify demand for potential service applications;
- assess the short and medium-term (three to five year) telecommunications needs of major end users, and major groups of users, and offer input for longer term projections (up to ten years);
- determine benefits of additional services and applications and identify constraints to their current utilization;
- assess the role of telecommunications as:
    - a stimulus to economic growth for businesses, and

- for the quality of life for all citizens in Kansas; and

- provide a building block for evaluating benefits to Kansas of an Enhanced Telecommunications Infrastructure.

The first volume of the *Assessment* is the primary research conducted in Kansas and supported by Kansas-specific secondary research and the second volume presents secondary research results. The third volume consists of appendices, including a bibliography of secondary research, interview lists, and interview guides. The core of the primary research is the survey work completed by DCI, in conjunction with Theodore Barry & Associates and the Docking Institute for Public Affairs, and the findings extrapolated from those surveys. Surveys of major users were predominantly conducted on the telephone and generally lasted 1.0 to 1.5 hours. Geographical diversity was a factor in the selection of persons to be interviewed. With respect to large users, contacts familiar with a broader constituency were generally selected. A summary of survey findings is listed in tabular form below. Users of telecommunications services were surveyed in categories of seven user groups:

1. industrial commercial;
2. education;
3. health care;
4. government;
5. residential;
6. small business; and
7. other (both chambers of commerce and social service agencies).

The summary highlights the specific needs of each group in three categories – near term (present to three years); medium term (three to five years); and long term (five to ten years). **Appendix VI** includes the tables of all needs ranked in priority order by category and should correspond to the section of the table titled "Category Specific Needs."

Category	Number of Users Interviewed	Existing Barriers	General Needs	Category-Specific Needs
I. Industrial/ Commercial	Ten large companies interviewed on telephone; four of 17 returned completed written responses.	Several complaints that digital was not available and the network has insufficient bandwidth to accommodate video communications and high speed data transmission. Other problems: over 20 percent of respondents cited poor quality facilities and service; Primary Rate ISDN is far too expensive and Basic Rate is not available; 800 portability is not available from ILECs; Virtual Private Network is not always available; and voicemail is not always available for use on residential lines.	All respondents reported having some mobile employees. Improved cellular communications was cited as the telecommunications technology that could help make mobile employees most effective. Other telecommunications technologies to that end included: PCS, radio communications, and dial-up data communications for sales employees.	Computer networking scored highest on need for the near term and high speed data query, document retrieval, and fax scored highest for the long term, while video phone scored lowest for the medium and long terms.
II. Education (includes K-12 and post-secondary institutions)	Ten telephone interviews	Primarily telephone rate structures and low penetration of high speed data services have slowed the use of information services. Problems cited were: lack of interoperability of telecommunications services; delays in certification of distance learning courses, since standards established by the Board of Regents for course content and quality are not necessarily as applicable to nontraditional courses; insufficient bandwidths to accommodate electronic classrooms with speed and ease of use; and lack of affordable access to Internet providers in rural areas of the state.	N/A	Data base access was ranked as the highest near-term need, and continued as the highest ranked need throughout the forecast period. Distance learning, particularly full-motion video, was ranked next in importance. Homework hotlines for K-12 ranked very high and educational video on demand for postsecondary education ranked as an important need.
III. Health Care	Five respondents	The required infrastructure for health care applications is either nonexistent or, if it is existent, its use is prohibitively expensive. In addition, the low speed of the publicly available network impedes widespread use of several applications, including video conferencing.	All but one health care organization had mobile workers. Two-way interactive video and cellular communications were most frequently cited as telecommunications technologies that could make employees most effective. Affordable ISDN and multipoint teleconferencing were cited as applications needed to make telecommuters more effective.	The greatest near-term need was identified as teleradiology, with health outcome measures and medical advice hotlines judged to be absolutely essential in the long term.
IV. State Government	Ten respondents	Judiciary – Judges and trial staff tend not to use the KANS-A-N network because of lack of convenience and increased dialing complexity. Decentralized funding also impedes coordination and use of technology. Libraries – Barriers include a lack of coordination among providers to ensure complete coverage of library services; a lack of affordable access to Internet providers; a lack of interactive video and high speed data to link libraries; and a lack of dedicated lines needed to provide *talking book* services. Kansas Bureau of Investigation – There are no resources for high quality video for laboratories to use to support complex tests at remote sites. DISC – Funding constraints and reluctance of state agencies impede greater use of video teleconferencing. There is demand for wireless, particularly from law enforcement agencies and the Department of Transportation, but it is still too costly. No broadcast-quality video is currently available. Kansas Inc. – Kansas Inc. has oversight of the Information Network of Kansas (INK), which provides gateways into state agencies for accessing publicly available information. A constraint with INK is that interLATA charges limit accessibility.	N/A	Computer networking, full motion interactive video, high-speed data base query applications, and library sciences services ranked absolutely necessary now and in the future. In addition, 911 and bulk calling line ID ranked as essential in the long term. Criminal justice applications, such as scanning-in documents from remote locations, will require T1 bandwidths or higher speeds in the future. Proposed network changes are required to accommodate the National Criminal Information Network, which has data bases on stolen property.

Category	Number of Users Interviewed	Existing Barriers	General Needs	Category-Specific Needs
V. Residential Users	Two-hundred-and-forty-six respondents with slightly over 60 percent residing in rural areas of the state.	Cost appears to be the greatest factor in determining whether the new telecommunications technologies will be embraced. Young respondents (17-35 years old) were the most interested in new technologies and had the least disposable income.	N/A	With respect to future services, the greatest percentage of respondents were interested in having video phone services. Over 40 percent of the respondents expressed interest in having a universal telephone number (number portability).
VI. Small Businesses	Three-hundred-and-two business managers or owners with less than 50 employees.	Small businesses are generally unaware of newer technologies. The conceivable scope and scale of possible business telecommunications services is vast and mind-boggling to them. Small businesses tend to be reactive in adopting new technologies; they avoid using new technologies until market conditions or competitive forces make them do so.	Size, and not location, was the greatest factor in characterizing existing and future small business telecommunications needs. Firms with more than ten employees were more likely to use and need advanced technologies (LANs, LAN modems, or on-line services) and to indicate interest in future services, in contrast to firms with five or fewer employees.	Approximately three-fourths of all small business respondents use computers and FAX machines and slightly more than half use modems. With respect to current telecommunications usage, over 86 percent subscribe to touch tone service. Only approximately one-third subscribe to speed dialing, conference calling, and 800 numbers. With respect to interest in future services, 42.7 percent expressed interest in digital data services and 25-30 percent are interested in video banking, video purchasing, and distance learning.
VII. Other (includes chambers of commerce and community/social service agencies)	Eight chamber of commerce entities; eight community/social service leaders	Chambers of commerce – Concern was expressed about the information and education available to businesses regarding telecommunications services. Community/social service agencies – Several areas of inadequate support were identified for users with special needs, such as the lack of special equipment and services and bilingual operators and equipment.	N/A	Chambers of commerce – All eight used FAX machines and had modems. Seven of the eight respondents had computers. Four organizations indicated that higher speed access lines to information services would benefit them; four indicated that it would not. Community/social service agencies – Other than special equipment and services (existing needs indicated under barriers), the greatest desire for future services include: video and home shopping, video telephones, medical services, and movies on demand. Those interviewed indicated less concern for enhanced services and greater interest in keeping constituencies connected to the larger Kansas community.

CHAPTER IV

A Vision of Kansas Telecommunications for the 21st Century

The Committee identified the applications that were most important for a statewide telecommunications network to have the capacity to support. That vision statement is set forth below:

Connection to the Future:
A Vision of Kansas Telecommunications for the 21st Century

Every Kansan Will Have Access to a First Class Telecommunications Infrastructure That Provides Excellent Services at an Affordable Price.

To that end, Kansas should adopt policies that ensure:

A. Universal service in a competitive environment;

B. An interconnected statewide telecommunications network that provides state-of-the-art high-speed communications to all Kansas communities. The network will include the capability to support:

- public safety, crime prevention, and judicial system applications;
- telemedicine applications, particularly in underserved areas of the state;
- services for persons with special needs;
- distance learning applications to enhance educational opportunities;
- library service applications for research and education, and to facilitate access by citizens who do not have information technology;
- electronic access to government services and intergovernmental communications;
- high-speed information transmission and computer networking for business and research applications;
- access to an Internet provider at a reasonable price for residential, business, governmental, and educational use;

- business and economic development applications that enhance global competitiveness and job opportunities; and

- high-quality video, voice, data, and multimedia communications links for Telecommunity Centers and Televillages.

C. *An orderly transition to a fully-competitive telecommunications infrastructure.*

These policies will:

- put the consumer first by maximizing the use of market forces to encourage innovative services and prices;

- preserve and enhance universal service at an affordable price for every Kansan, including the poor and those who live in remote areas;

- promote advanced telecommunications interconnectivity and compatibility;

- promote investment in Kansas, including the upgrading of the telecommunications infrastructure throughout the entire state in a timely manner;

- integrate information technologies into Kansas business through technology transfer and applied research;

- provide educational and training programs using telecommunications and information technologies; and

- provide a method of ensuring and monitoring the achievement of this vision.

It should be noted that the vision statement is not technology specific and reflects in general terms the needs identified in the *Kansas User Needs Assessment* summarized in Chapter III. Many of the key concepts included in the vision statement of: stimulating competition; protecting universal service; encouraging providers to invest in upgrading the telecommunications infrastructure; and promoting advanced telecommunications interconnectivity and compatibility are also operative in the proposed regulatory framework addressed in Chapter VII.

CHAPTER V

Can Telecommunications Providers Support Applications in the Vision Statement?

Because the vision statement identifies applications in very general terms, it is often difficult and in some cases impossible to determine conclusively whether telecommunications providers have the existing capacity or even the projected capacity to support those applications. The consultant's report *Evolving Services and Technologies* included very general information about current and future technology deployment for local distribution, switching, and internodal transport by carrier type – LEC, CATV, CAP, Cellular, PCS Operator, and Satellite (Synchronous and Low Earth Orbit). Also identified were services currently available and projected to be available by carrier. Some of the information contained in the report has been updated and expanded upon by various providers and subsequently furnished to the Committee. This information is on file at the Kansas Legislative Research Department. However, a few points might be appropriate here.

First, services to be provided by PCS operators and LEO satellites are currently under development. For both, the costs of infrastructure development are very high. Nonetheless, in a few years PCS operators could be competing with traditional cellular companies, specialized mobile radio services, and local exchange services. Satellite phone services will probably be targeted to niche markets, such as residents and travelers in rural areas that lack cellular service, and in developing countries where phone service of any kind is limited.

Second, as previously noted, SS7 or Signaling System 7 is a signaling protocol or platform for network control and a precondition for call management services, such as number portability in which over 40 percent of residential users surveyed in the *Telecommunications User Needs Assessment* expressed an interest. SS7 also enables communications to occur between central offices in an ISDN network. Complete deployment of SS7 requires that digital switches be modified and 2BESS and electromechanical switches be replaced. To date, SS7 capability is extensively available throughout Kansas for virtually all of Southwestern Bell's offices and approximately half of the ILECs' offices. It is not at all available in Sprint/United's offices. Multimedia Hyperion Telecommunications included SS7 capability in its future plans. KINI has established SS7 connections with six ILECs in Kansas, with more scheduled.

Third, certain applications identified in the vision statement and in the *Telecommunications User Needs Assessment* will benefit from ISDN capability, particularly those applications involving data base access services, desktop video conferencing, high speed fax, low resolution video, encrypted voice, telecommuting, and PBX networking. To date, there has been limited deployment of technology to support ISDN services in Kansas. Currently, in mostly metropolitan areas of Kansas, Southwestern Bell uses what is known as an overlay strategy to make primary rate ISDN available. (This means that only a few switches are equipped for ISDN and users are connected to the service through specially equipped access lines. The justification for this strategy is to keep prices affordable, as ISDN is still a low usage service. As the traffic volume expands, it becomes economical to add switches.) KINI indicated capacity to provide transport for basic rate and primary rate ISDN services and Multimedia Hyperion Telecommunications included ISDN services in its future plans. ILECs generally do not yet have ISDN capability in Kansas. Sprint/United noted that, according to its analysis, there will not be substantial demand for such services in Kansas in the near future.

Fourth, full fiber interconnectivity or the technological equivalent among central offices would expedite the accessibility of interactive video applications throughout the state. Interactive video is an application which is subsumed under the rubric of distance learning in the Committee's vision statement and was identified as being absolutely necessary for the education community. Optical fiber is also the medium offering the greatest transmission capacity and increasingly more applications will require such capacity. In Kansas, the situation is as follows. According to Weber and Temin, the backbone network is adequate to support interactive video services throughout the state; however, insufficient interoffice fiber optic connectivity appears to be a deterrent to widespread deployment. All LECs are in the process of installing fiber interconnectivity between central offices. Southwestern Bell reported 67 percent of its offices currently have fiber access with approximately 90 percent projected capability by March 1997 (the end of TeleKansas II). Sprint/United reported 29 percent with fiber access and by the end of 1997, 51 percent of its offices will have such access. The ILECs are in varying stages of realizing total fiber access (about half of the offices reported fiber access in a recent survey) but plans are to have almost all ILEC offices with fiber access within five years. The offices of the interexchange carriers (IXCs) have fiber access, as do the CAPs. CATV offices are connected via coaxial cable but future plans include fiber connectivity.

Fifth, broadband (or comparable) services are optimal for high quality two-way interactive video applications and high-speed data transmission. According to the consultant's report *Evolving Services and Technologies*, 12 LECs reported some provision of interactive video in Kansas. Specifically, the Southwestern Bell Telephone agreement under TeleKansas II authorizes the company to provide this service to schools in its service area (27 schools are providing such service under TeleKansas II rates to date); Multimedia Cablevision has plans to provide interactive video service in Great Bend; and KINI indicated ability to provide direct fiber facilities to schools, hospitals, libraries, and government agencies on an individual case basis. Seventy-three percent of all K-12 schools in Kansas have a broadband cable television connection. These facilities have been installed free of charge to schools. Cable operators, such as Eagle Communications in Hays and Sunflower Cablevision in Lawrence and others, are pioneering the use of fiber optic and two-way video technology for telemedicine applications. In addition, Kansas cable operators are experimenting with high-speed data access. According to the Mid-America Cable TV Association, this application is expected to be available to Kansas schools in 1996-1997. However, access to broadband services for *all* interested schools, hospitals, libraries, and governmental agencies in the state remains, for the most part, a future proposition due to lack of availability or high cost. That observation notwithstanding, certain research facilities in Kansas have state-of-the-art broadband equipment out of which these new services will evolve.

Sixth, telecommunications providers generally have the expertise to provide all the technologies described above. The lack of technology deployment is generally not a matter of technology "know-how," but rather of affordability either to the user or adequate compensation to the provider to justify investments in the necessary infrastructure. For example, a low penetration of usage of primary rate ISDN services will cause businesses to complain about the expense of such services if costs are apportioned only among a few users. Expense-related complaints are currently lodged by schools and libraries, particularly those located in rural areas, concerning access to Internet providers and by schools and hospitals regarding recurring high rates for the use of two-way interactive video services.

CHAPTER VI

Background
How Should Telecommunications Services be Regulated?

A balancing act between provider costs and rates charged to users will need to occur to ensure that telecommunications services are available to meet the diverse array of needs outlined in the vision statement and that universal service, to be discussed below, is not compromised as a result. Although there is no guarantee that such a balance ultimately will be realized, the Committee believes that promotion of competition among telecommunications providers is the most effective strategy in the long term and that a well conceived regulatory and infrastructure incentive framework can do much to accomplish that objective.

Rapid technological change and merging technologies have required policymakers at both the federal and state levels to reexamine what form of regulation is most appropriate for meeting the multiple objectives of:

1. promoting competition among telecommunications providers;

2. stimulating investments in telecommunications infrastructure;

3. ensuring that neither incumbent LECs nor competitors are placed at a competitive disadvantage in making telecommunications services available to ratepayers (what is known as "creating a level playing field"); and

4. preserving universal service at affordable prices.

Ultimately, what is of greatest benefit to the most consumers should drive regulatory considerations. With an expanding array of products and services that will result from technological advances, the consumer will want, and should be able to have, the greatest selection of products and services at the highest quality for the best price. If the regulatory framework is structured appropriately, consumers will reap the benefits of effective competition.

Changes in Technology and Market Demand

Two major forces are pushing policymakers toward relaxed regulation and deregulation of telecommunications services on a global basis – technological changes and changes in market demand. These forces are summarized in an article by Michael Dowling *et al.*, 1994. With respect to technological changes, the merging of telecommunication and computer technologies is allowing service competitors in the computer and cable television (CATV) industries to offer new services to compete with traditional phone companies. The merger of data processing and telecommunications functions within large corporations is generating the development of new local area networks (LANs) which no longer depend on telephone companies. (A LAN is a high-speed data communications network in which all segments of the transmission medium are within the users' premises.) The shift to computer-based switching technology undermines the basic network switching economics that historically has been the

underpinning of telephone companies. These telephone companies must diversify given the competition of nontraditional telecommunications providers to offer services through the interconnection of LANs.

Changes in the equipment infrastructure also promote the development of new telecommunication service capabilities – new networks, more advanced operating systems, new switching technologies, and advances in photonics, electronics, and information processing technologies. Moreover, there is an increase in voice and data mobile services that, to an extent, bypass the traditional wireline network.

With respect to changing market demands, the merging of traditional voice communication with digital information transfer and visual communication, as exemplified by ISDN services, has the potential of revolutionizing the basic concept of telecommunications services. New services will be more visual, more intelligent, and more personal than in the past. An example of market demand pushing technological development is the effort by four Regional Bell Operating Companies (RBOCs), with AT&T, IBM, Intel, and several modem manufacturers to join forces to make it easier to acquire ISDN.

Technological change and change in market demand will eventually transform the services of traditional telecommunications providers. If authorized to do so, telephone companies will be able to modify their land-based networks to offer standard cable television services and interactive broadband services, and cable companies will be able to move from one-way to two-way interactive video services and also to enter the market for voice and data communications. Finally, various types of spectrum-based systems can offer any or all of those services, from the simplest switched voice service to interactive video (Crandall and Sidak, 1995).

All these changes will not occur overnight and since so many of the necessary technologies to realize those changes are still in the embryonic stages of development and deployment, what is really depicted above is the information universe of the future rather than that of the present. However, it is the future that will and should govern the formulation of regulatory and nonregulatory policies necessary to accelerate this development and deployment and allow Kansans to derive maximum benefits from new and emerging technologies and services.

Why is Another Mode of Regulation Necessary?

Beginning in the late 1980s and early 1990s, many state regulatory commissions, including the Kansas Corporation Commission, reexamined their regulatory schemes and subsequently adopted certain alternative regulatory pricing reforms. The intent of these reforms was to: promote the emergence of competition; stimulate the use of new technologies and services; provide local rate stability; provide pricing flexibility; and ensure that universal service goals were advanced. These reforms included and continue to include: price caps, adjustments to price caps, profit sharing, incentive regulation, pricing flexibility, and infrastructure commitments.

A precursor to many of these regulatory reforms is rate-of-return regulation, which was developed for monopoly public utilities. Under this regulatory scheme, a total revenue requirement is determined, which is then recovered from the sum of revenues of the particular services provided. Prices are set to bring together revenue and total cost based on historic test year costs. However, the advent of competition in the provision of certain telecommunications services (most significantly, high-speed communications) began to create problems for this mode of regulation, in part because rate-of-return regulation was designed to equate *total* revenues to *total* cost, and not to equate revenue for a particular service to the cost of that service (Brock, 1994).

Many public utility commissions have already replaced rate-of-return regulation with alternative regulatory schemes because rate-of-return regulation provides telecommunications utilities, facing an increasingly competitive environment, with no incentives for: efficient operation; accurate representation of costs; accurate pricing of investments; efficient "value of service" pricing; and minimized administrative costs. With rate-of-return regulation coupled with grants of exclusive certification in particular territories, there is also more opportunity for "rent seeking" in regulatory proceedings. "Rent seeking" refers to maximization of returns to capital (maximizing profits). Moreover, rate-of-return regulation can result in cross-subsidization – the subsidization of one product or service with revenues from another. This practice can, in turn, impede the emergence and deployment of competitive technologies. As stated in one article (Crandall and Sidak, 1995):

> When a rate-regulated monopolist enters a competitive market, there is a risk that it will underprice its rivals by attributing some of the costs of producing the competitive product to its rate-regulated activities, passing the misallocated cost along to its captive rate payers. The potential for cost misallocation reflects the asymmetry of information between the regulated firm and its regulator: the regulator has imperfect information about the firm's true costs and the appropriate allocation of common fixed costs among regulated and unregulated operations: thus, the regulator is at a disadvantage when seeking to link the firm's profits on regulated operations to its cost of service.

TeleKansas

The Kansas Corporation Commission initiated the first alternative regulatory scheme in February 1990 with the implementation of TeleKansas I, which applied only to Southwestern Bell Telephone Company. This alternative regulatory scheme essentially capped local rates for residential and single-line businesses for five years, until March 1995, and provided flexible pricing procedures for other services in exchange for no rate-of-return regulation for the duration of five years and a commitment by the Company to invest $160 million for infrastructure upgrades. (There was a disagreement between the Commission staff and Southwestern Bell about the possible review of earnings after TeleKansas terminated.) In accordance with provisions of 1994 H.B. 3039 (see Appendix II), the Legislature extended TeleKansas for another two years (until March 1, 1997), and the Commission issued an order to implement it. The Legislature required the Company to construct, when necessary, a fiber optic network to provide broadband educational video services to educational institutions requesting them in the Company's service area. The required Company investment is not less than $64 million above normal construction expenditures.

Background – the Commission's Investigation Into Competition

S.C.R. 1627, which established the TSPC, required the Commission to open one or more generic dockets to investigate the level of competition for each regulated or flexibly regulated telecommunications service under its jurisdiction. Other requirements included: the periodic assessment of the level of competition for such services and emerging services; establishment of a classification system for telecommunications services based on degree of competition; establishment of standards and procedures by which the rates, terms, and conditions of telecommunications services are regulated; development of a method for ensuring that regulated services will not subsidize competitive or unregulated services (cross-subsidization); definition of "universal service," including a method for ensuring universal service in high-cost areas of the state; development of criteria for "basic telephone service" and the availability and provision of such service in a competitive environment; development of a procedure for ensuring the quality of telecommunications services; and definition of "lifeline

telephone service," including the appropriate means of funding the provision of such services. The Kansas Corporation Commission opened several dockets and has rendered decisions in Phase I of the Competition docket and a decision on cost studies in response to the resolution's directive. The docket which received the most scrutiny from the TSPC was the one specifically investigating competition within the telecommunications industry (Docket No. 190, 492-U). The Commission issued its order on Phase I of this investigation on May 5, 1995 (hereafter referred to as the Order on competition). The Commission's order emphasized the advantages of telecommunications competition in the state and a preference for competition over regulation. Several Commission orders have led to increased telecommunications competition.

Committee Activities -- Proposed Policy Framework

Weber Temin & Company developed recommendations for a regulatory framework and submitted them to the Committee on May 10, 1995. These recommendations were compared to the Commission's and were modified over a period of months until their final version on August 31, 1995. It should be noted that the issue of competition is but one of three foci of the Weber Temin proposal whereas the Commission's Order on competition focused primarily on competition (universal service and infrastructure are addressed in other dockets), and was much more detailed and expansive than any of the Weber Temin iterations.

For its part, the Committee was directed in the 1994 resolution, based on generic findings of the Commission, to submit a recommendation to the Legislature concerning the form of regulation that would be appropriate for services which remain regulated. In making its final determination about the nature and scope of the policy framework to promote competition, the Committee heard arguments from Mr. Weber and Dr. Temin in support of their recommendations and from: the Chairperson of the Kansas Corporation Commission, Susan Seltsam; former Commissioner, Rachel Lipman; former Director of the Utilities Division, Don Low; and Dave Brevitz, consultant to the Kansas Corporation Commission, explaining the Commission's positions. Both the Commission's Order on competition and the Weber Temin proposal address certain issues which reflect agreement and others which reflect divergent views.

In making its final recommendations, the Committee recognized the great difficulty, if not impossibility, of achieving unanimity on all or even many of the issues at stake, given the inherently adversarial nature of any policy formulation related to competition. To complicate matters further, ongoing deliberations on federal telecommunications legislation occurred simultaneously with the Committee's deliberations on many of the same issues. Those observations notwithstanding, the Committee's *Policy Framework* reflects the endorsement of a majority of its 17 members.

CHAPTER VII

Proposed Policy Framework for Telecommunications in Kansas

1. Statement of Purpose

Telecommunications policy should: encourage competition in all markets, with a transition from monopoly as rapidly as possible consistent with consumer benefit and industry stability and stimulate with incentives the construction of an advanced telecommunications infrastructure, so as to meet all current and future needs in a prudent and economical manner, while protecting universal service, so as to ensure that telecommunications service is available at affordable rates throughout Kansas.

2. Definitions

1. "Broadband" means the transmission of digital signals at rates equal to or greater than 1.5 megabits per second.

2. "Commission" means the Corporation Commission.

3. "ISDN," "LATA," and "1+ intraLATA interexchange service" shall each, respectively, have the meaning of such terms as commonly used in the telecommunications industry.

4. "Telecommunications company" means a corporation that provides a telecommunications service, including interexchange carriers and competitive access providers, but not including telephone companies certified before the effective date of this act.

5. "Telecommunications service" means the provision of a service for the transmission of telephone messages, or two-way video or data messages.

6. "Telephone company" means a local exchange carrier.

3. Universal Service

The Commission shall develop a process for supporting universal service, including a definition thereof and a method for updating the definition periodically. The Commission shall determine: if a new fund is necessary, the size of the fund that is needed, if such fund can be transitional, who contributes to the fund and on what basis, who receives payments from the fund and on what basis, and to what extent the fund shall support infrastructure improvements. The Commission is encouraged to adopt any universal service plan that is agreed to by any group of interested parties representing all major stakeholders.

4. Competition

A. Facilities Based Local Competition. Effective July 1, 1996 but not later than September 1, 1996, the Commission shall authorize telecommunications companies to provide local exchange service that relies on the facilities of such company or any other telecommunications company other than a telephone company in any location in the state, provided, however, that a given telecommunications company has been granted a certificate of public convenience as required by present law to transact utility business in the state (K.S.A. Sec. 66-131). Upon request by a certified telecommunications company, telephone companies must provide such telecommunications company with pole attachments and duct space on the same basis as telephone companies provide such access to cable television carriers.

B. Unbundling of Local Loop, Switch, and Trunk Facilities for Resale. A telephone company may at any time offer to sell unbundled local loop, switch, and trunk facilities to telecommunications companies for resale, provided such telephone company has filed a tariff with the Commission offering such service at a price above long-run incremental cost which will have been approved by the Commission.

1. In the case of Southwestern Bell Telephone Company, the Commission shall require the sale of unbundled local loop, switch, and trunk facilities for sale to telecommunications companies for resale at the time legal restrictions prohibiting Southwestern Bell Telephone Company from providing interLATA service have been removed.

2. In the case of telephone companies other than Southwestern Bell Telephone Company, the sale of unbundled local loop, switch, and trunk facilities for resale will not be required before October 1, 1998 and the Commission shall determine whether to require sale of such unbundled services for resale after such date, taking into account industry experience and practices in other jurisdictions at that time.

At such time as unbundled loop, switch, and trunk facilities are offered for resale by any telephone company, telecommunications companies wishing to offer service based in whole or in part on such facilities shall be authorized to do so, providing the terms of Section 6.G. below have been met.

C. 1+ intraLATA Toll Competition. The Commission shall ensure that "1+" intraLATA interexchange service by telecommunications companies is implemented simultaneously with Southwestern Bell Telephone Company's provision of interLATA toll service.

D. Interconnection Rights. In order for telecommunications companies to provide local exchange service, telephone companies must provide telecommunications companies the means to interconnect their respective customers, including but not limited to toll access, operator services, directory listings, directory assistance, and access to 911 service. Telecommunications companies providing local exchange service shall provide telephone companies corresponding access to such facilities and services. Customers shall be accorded number portability and local dialing parity to the extent economically and technically feasible and in conformance with national standards. Terms and prices for interconnection shall initially be negotiated in good faith between the parties, but the Commission shall intervene and resolve issues on an expedited basis if an agreement is not reached between the parties after 90 days of negotiation.

5. Telecommunications Infrastructure

Each telephone company shall file a network infrastructure plan with the Commission after July 1, 1996 and prior to July 1, 1997. Each plan, as a part of universal service protection, shall include schedules, which shall be agreed to by the Commission and the respective telephone companies, for deployment of the following facilities and services:

a. SS7 capability throughout the service area of the telephone company;

b. basic and primary rate ISDN capability throughout the service area of the telephone company;

c. full fiber interconnectivity (or technological equivalent) among central offices (every wire center to have at least one fiber route going to another central office); and

d. Broadband capable facilities to all schools, hospitals, libraries, state, and local government facilities which request broadband services.

Schedules may vary depending on the size and location of the various telephone companies. Similar plans may be filed with the Commission by other certified telecommunications companies.

6. Regulatory Reform

A. Telephone Company Plans. In order to protect universal service, facilitate the transition to competitive markets, and stimulate the construction of an advanced telecommunications infrastructure, each telephone company shall file a regulatory reform plan at the same time as it files its network infrastructure plan required in Section 5 above. Each plan may include, among other features, price caps for local exchange and switched access services, price rebalancing among local exchange, toll and access, and deregulation of all services except:

1. unbundled loop, switch, and trunk facilities offered for resale; and

2. services referenced at Items 6. E. 1. and 2. below.

As part of its regulatory plan, a telephone company may instead elect continuation of rate of return regulation. In any event, basic intraLATA toll prices may not be deaveraged.

B. Price Cap Plans in General. Price cap plans shall have two baskets. These are: (1) residential and single-line businesses, including touch-tone; and (2) switched access charges.

In addition, in the case of any service which has had its price deregulated, upon showings to the Commission that:

1. the service is essential for particular residential or business users;

2. there is no alternative supply for the service; and

3. the price of service has risen more rapidly than the price of basic residential local service,

the Commission shall reimpose price regulation for that service in its own separate basket. A price cap is a maximum price for all services taken as a whole within a given basket. Prices for individual services and for services to individual customers may be reduced within the basket. An entire basket may, if desired by the telephone company, be priced below the cap. However, no service shall be priced below long-run incremental cost. Furthermore, access charges equal to those paid by telecommunications companies to telephone companies should be imputed as part of the price floor for toll services offered by such telephone companies on a total service basis. Cost studies to determine price floors will be performed in response to complaints. No later than January 1, 1997, Southwestern Bell Telephone Company shall have filed with the Commission long-run incremental cost studies for all of its existing services as of July 1, 1996, using studies completed after April 1, 1994.

C. Residence and Single-Line Business Service. Price caps for residential and single-line businesses, including touch-tone, will be annually adjusted according to the formula: price change = CPI- X + Y, where "CPI" means the percentage change in the consumer price index, "X" means the national rate of productivity gain in telecommunications, and "Y" means a factor to offset the loss in revenue estimated for the following year due to reductions in both access charges and the imputed access portion of intraLATA toll charges provided by telephone companies, but "Y" shall not account for revenue reductions due to market share losses. The "X" and "Y" factors are to be applied to the basket as a whole. The "Y" factor would continue to be used as part of the price cap formula until a revenue balance has been reached. Once intrastate access prices reach interstate levels, and revenue neutrality has been reached, the "Y" factor shall be deleted from the price cap formula. Total increases in rates for residential and single-line business services would be limited to $1.50 per line per month in each year, except to the extent the Commission authorizes a greater amount.

D. Intrastate Switched Access. Price caps for intrastate switched access will be reduced to prices for interstate switched access over a three-year period, as long as corresponding changes to local service price caps are made under Section 6.C. above. All switched access price reductions, whether real and part of the costs incurred by telecommunications companies, or imputed and part of the cost floor for telephone companies, will flow through to consumers in the form of lower toll rates. After the three-year period, intrastate switched access prices will continue to be capped at the price of interstate switched access, as long as corresponding changes to local service price caps are made under Section 6.C. above. Telephone companies are not precluded from reducing intrastate switched access charges to levels lower than interstate access charges.

E. Initial Prices. Price cap plans should include initial prices which are the then existing prices. Regulatory plans should also include:

1. a commitment to provide broadband capable services to any hospital, school, library, or state and local government facilities to which facilities have been built under the infrastructure plan at discounted prices close to, but not below, long-run incremental cost; and

2. a commitment to provide basic rate ISDN capable service at prices which are uniform throughout the company's service area and which are designed to stimulate the development of an extensive residential market.

No audit, earnings review, or rate case shall be performed with reference to the initial prices filed as required herein, but the Commission can reduce prices charged for services outlined in subparagraphs 1 and 2 of this paragraph if the telephone company commitments are not being kept.

F. Periodic Review of Formula. The price cap formula, but not actual prices, shall be reviewed every five years in order to adjust the productivity offset.

G. Telecommunications Companies. Telecommunications companies shall not be subject to price regulation, except that:

1. access charge reductions shall be passed through to consumers; and

2. basic toll prices shall remain geographically averaged.

As contemplated under current law at K.S.A. 66-131, telecommunications companies which are transacting business in state for the first time, including cable television operators who have not previously offered telecommunications services, must receive a certificate of convenience based upon a demonstration of technical and financial viability. The Commission shall oversee telecommunications companies to prevent fraud and other practices harmful to consumers.

CHAPTER VIII

Explanation of Provisions of the Policy Framework

Below is the Committee's explanation of the various provisions of the *Proposed Policy Framework for Telecommunications in Kansas*, placed in the context of the Commission's recommendations in its Order on competition and other supporting documentation.

A. Competition

Committee's Position on Competition – General Policy

The Committee takes the position that the statewide telecommunications policy should provide an orderly transition to competition as rapidly as possible and consistent with consumer benefit and industry stability. The Committee notes that its position refers to competition in *all* markets of telecommunications – within the local exchange market, within the intraLATA toll market, and, pending Congressional action, within the interLATA toll market.

Definitions

At this point, an explanation of intraLATA and interLATA may be in order as these terms will recur. A "LATA" is the acronym for Local Access and Transport Area. In the divestiture of AT&T, the U.S. District Court divided the United States into LATAs. These areas, based on central office service areas at divestiture, established boundaries for the carriage of toll calls by the Bell Operating Companies (BOCs). The Modified Final Judgement (which in 1982 separated AT&T's long distance service from the local exchange telephone service) stated that the BOCs could not provide interexchange services; however, they were permitted to carry toll (long-distance) calls within LATAs (intraLATA calls). Interexchange carriers (IXCs) had to carry toll calls between LATAs (interLATA). As we know, competition exists among IXCs in this market.

Current Status of Competition in Kansas

Competition in Kansas is currently restricted by several regulatory policies:

Local Exchange Competition. The Kansas Corporation Commission generally has not authorized switched local service. However, the Commission recently authorized two firms to provide local switched exchange services in the Hill City exchange, including Bogue. Moreover, as previously noted, competitive access providers (CAPs) provide high capacity dedicated lines to such end users as IXCs and large business customers. Many CAPs are affiliated in some way with CATVs. In Kansas, CAPs are currently in operation in Kansas City (Kansas City FiberNet) and Wichita (Multimedia Hyperion). On December 20, 1995, the Kansas Corporation Commission granted Kansas City FiberNet permission to begin offering local exchange service.

InterLATA Services Prohibition – Southwestern Bell. The BOCs, including Southwestern Bell, have been prohibited from providing interLATA toll services pursuant to the Modified Final Judgement (MFJ) referenced above. The Kansas Corporation Commission, like all state regulatory commissions, does not have jurisdiction over the entry of the BOCs into interLATA toll service. This is totally a matter of federal jurisdiction, although the state does control whether to allow parties to compete with Southwestern Bell before Southwestern Bell can compete with them in the interLATA market. The ILECs in Kansas are not prohibited by the MFJ from providing interLATA toll service, and, in fact, United Telephone Company has an affiliate (Sprint) that provides such interLATA long distance service.

IntraLATA Toll Service – Restrictions. The Kansas Corporation Commission authorizes the IXCs to provide IntraLATA toll service. However, unless they use autodialers, customers wishing to use any carrier other than the LEC for an intraLATA toll call are required to dial a five-digit access code (10XXX), in addition to the regular ten-digit number. An autodialer is any device which is capable of dialing digits that have been programmed into it.

The above regulatory policies obviously have implications for competition, as will be addressed below.

Advantages of and Problems Associated with Transition to Competition. In formulating its *Policy Framework*, the Committee noted that any transition to competition from monopoly status will not be smooth and that increasing competition will provide Kansans with advantages but also will present certain complications. In the long term, the advantages should outweigh the complications but the latter needs to be addressed. On the one hand, the advantages of competition are that it: promotes efficient supply, allows diversity of choice, and stimulates a variety of new products and services. On the other hand, potential problems, many of which are interrelated, include:

- pricing distortions which result in unregulated competitors luring away the most lucrative customers;
- reduced revenues for universal service (discussed below);
- possible "stranded investment" (*i.e.*, regulated utilities are unable to recoup their capital outlay for plant and equipment as a result of competition);
- disruption in service due to migration of service delivery to more profitable areas; and
- inequities in conditions faced by competitors in providing comparable services (what is often referred to as "a level playing field").

The Committee notes that there is unanimity among all telecommunications providers that effective competition *for all services* in the local exchange market does not exist today. There is understandably a difference of opinion among the various telecommunications providers as to the most appropriate standards for defining "competition"; the existing level of competition for given services in Kansas; and the necessary conditions that must exist to ensure a "level playing field" among providers to promote competition. However, all providers would agree that, at a minimum, local switched residential and single-line business service is currently not competitive. Moreover, all providers would undoubtedly agree that, for many services, the benefits of competition are, for the most part, more likely

to be realized first in metropolitan areas, then in rural areas. Indeed, the potentially uneven distribution of competitive telecommunications services throughout the state will have profound implications for universal service.

B. Universal Service

Committee's Position

The Committee recommends that the Commission develop a process for supporting universal service, including a definition thereof and a method for updating the definition periodically. The Committee's proposed *Policy Framework* sets forth the issues to be determined by the Commission (see above) and encourages the Commission to adopt any universal service plan that is agreed to by any group of interested parties representing all major stakeholders. Prior to reviewing the Commission's activities with respect to universal service and the implications of universal service for competition, we need to understand what universal service is.

What is Universal Service?

In the Committee's vision statement, the Committee anticipated that certain telecommunications services, to be identified by the Commission, would be available to all Kansans, including the poor and those who live in rural areas, at affordable rates throughout the state. The term *universal service* might be defined as "the actual connection to the public switched network (the telephone network) of all citizens with a defined service set capability included with the connection and with access to advanced services" (NRRI report, June 1994). For example, universal service generally includes two components – basic services and universally available services. Basic services are minimum telecommunications components which meet every customer's telephone needs. For example, at a minimum, two-way, voice grade local calling is a form of basic service; everyone connecting to the public switched network will get two-way, voice grade local calling as part of the basic service rate. *Basic Universal Service* could include an array of other services, such as: dial tone; tone dialing; telephone number assignment; access to emergency services, operator services, and toll services; directory listing; intercept service; equal access with 10XXX dialing; and others.

Universally Available Services are all other telecommunications components which may enhance the use or convenience of the customer's telephone. The Committee's vision statement lists a set of applications ranging from telemedicine to access to an Internet provider and requires that the statewide telecommunications network of the future have the capability to support such applications. Availability does not necessarily mean that, for example, a customer can access the Internet as part of basic universal service. However, following the intent of the vision statement, it does mean that the network must be equipped to allow access to an Internet provider at a reasonable price. Universal availability necessarily requires a universal deployment of network technology before any demand can be met, although it may be imprudent to deploy some facilities unless there is an identified demand. For example, for applications that require ISDN capability, digital switching capabilities would need to be universally available, although that could be engineered without placing a digital switch in every central office. Distance learning applications that include full motion two-way interactive video would require activation or placement of any necessary broadband capable facilities upon demand.

As technology changes, prices decrease, and penetration rates for given services increase, new telecommunications services might be included in the definition of *universal service* that would not have been considered previously. The important point here is that the definition of *universal service* is evolving and must be considered from that perspective. The evolving nature of universal service due to rapid technological enhancements and changing consumer demand raises the question of who pays and why increasing competition poses problems for universal service subsidies.

Kansas Corporation Commission Activities

On April 11, 1994, the Commission opened a docket on Universal Service, Infrastructure, and Quality of Service. In its Order on competition, the Commission established a Universal Service Working Group and directed that Group to consider alternative USF mechanisms to augment any federal initiatives and the federal Universal Service Fund, and submit a proposal to the Commission by October 1995. The Universal Service Work Group met nine times and issued a report on October 31, 1995, outlining six areas of conceptual agreement:

1. the need for a Kansas Basic Service Fund to which funding will be credited and redistributed to companies with high-cost customers;

2. the need to provide support payments in rural areas for high-cost service, as determined by standardized criteria;

3. the preferability of paying subsidies to the provider directly rather than a voucher system;

4. the need to provide a support mechanism to protect consumers from a rapid increase in local rates once rates are rebalanced;

5. the importance of conducting a careful analysis of lifeline service and a need to take some action to assist economically disadvantaged residential customers; and

6. the need to maintain universal service (here defined as the availability to every Kansan of, at a minimum, a basic level of telephone service which is offered at affordable rates for all who seek connection to the telecommunications network).

An overriding issue is that any new mechanism should be competitively neutral and compatible with local exchange competition. The Commission intends to establish parameters for universal service in January through March 1996 (to involve establishing a Kansas Basic Service Fund and definition of "basic service"). A hearing would be held in July 1996 on, among other issues, the proposed Kansas Basic Service Fund, and the docket on Universal Service would be closed in September-October 1996. A Kansas Basic Service Fund would be in place for the industry on March 1, 1997 (the termination of TeleKansas II), and would apply to all other providers regardless of competitive status on that date. This proposed process might be affected by federal legislation which, if enacted, would require a joint board of federal and state regulators to develop recommendations for promoting universal service. However, it presently appears that states will ultimately have some discretion in developing universal service policy.

How is Universal Service Provided?

Universal service is currently ensured by a system of explicit and implicit support flows (although there is no consensus regarding the degree of cross-subsidization). LECs may use revenues from toll calls, access fees collected on long-distance calls, and internal cross-subsidies, such as business rates subsidizing residential rates and rates for vertical or enhanced services subsidizing basic service rates, to keep local service rates below actual cost. In addition, there are explicit interstate forms of subsidy in effect, such as the Universal Service Fund (USF), Dial Equipment Minutes Weighting (DEM), Lifeline and Linkup. The USF and DEM mechanisms provide assistance to predominantly small LECs that serve high cost areas. The total USF and DEM assistance currently provided to LECs in Kansas is approximately $31 million. Southwestern Bell's operations in Kansas do not qualify for USF and DEM support, although the company uses other forms of cross-subsidization. Lifeline and Linkup provide assistance to low-income subscribers. Kansas does not currently participate in the Lifeline Program. The Linkup support currently provided in Kansas is approximately $10,000. (The description of explicit interstate mechanisms was excerpted from the "SWBT Universal Service Perspective" submitted to the Universal Service Work Group.)

The rate support method (support flows from toll and access and from within local services) and the interstate mechanisms (USF and DEM) may inhibit effective competition in some markets, as discussed below. At this juncture, a brief description of the operations of the USF, the most notable interstate mechanism, might prove useful.

How Does the Universal Service Fund Work?

The Universal Service Fund (USF, also referred to as the High Cost Fund) was established by the FCC in 1984 in its Part 69 access charge rules. The USF is used to pay support to those LECs whose costs of providing basic local telephone services are higher than the national average so that they can charge their subscribers reasonable local telephone rates. The USF accomplishes this by allowing high-cost LECs to recover additional revenue from the interstate jurisdiction, which reduces the amount of their costs allocated to the intrastate jurisdiction and thus keeps their local rates lower than they otherwise would be. The formula used to determine support payments is based on a sliding scale and clearly favors smaller LECs (fewer than 200,000 lines) with higher than average loop costs (costs of installing and maintaining the communication channel between the subscriber's premises and the LEC central office). LECs with loop costs greater than 115 percent of the national average are eligible for USF assistance. The large geographic and sparsely populated service areas of small, rural LECs drive loop-related costs much higher than those for the BOCs. These costs tend to be what is referred to as "nontraffic sensitive," which means that they will not differ with the amount of usage.

The USF is funded by IXCs which pay a flat monthly per-line fee based on the number of presubscribed lines (those lines for which equal access is available and subscribers have selected the IXC to which they want the LEC to route their 1+ long distance calls). The National Exchange Carrier Association calculates the USF payments, bills the IXCs for the charges, and distributes the funds to qualifying LECs on a monthly basis.

Prompted by IXC complaints that their USF obligations were growing too rapidly, the FCC decided to cap the amount of USF growth in 1994 and 1995 at an annual rate equal to the growth of nationwide working loops. During this interval, the FCC has been undertaking a review of permanent long-term changes in USF operations.

If enacted, federal legislation could affect the eligibility criteria and intended use of universal service subsidies. Pending federal legislation (Senate Bill No. 652) provides that such subsidies would only be directed to those companies that have agreed to provide service to every customer in their markets. Moreover, the subsidies could only be used to provide, maintain, or upgrade the facilities and services for which they were explicitly intended. (Federal House Bill No. 1555 has no comparable provision.)

Implications of Universal Service Subsidies for Competition

Adherence to the principle of economic efficiency is one of the key tenets of any telecommunications policy that has as an objective the promotion of competition. One interpretation of economic efficiency is that the price of every product be set no lower than its marginal cost or its average incremental cost. One can view marginal cost as the true cost a consumer imposes upon an economy in buying an additional unit of product. One can view incremental cost as the cost to a company of providing an additional unit of service.

However, the principle of economic efficiency can be at cross purposes with universal service goals. As we have seen, efforts to keep local residential rates below cost requires subsidies from toll and access revenues to local revenues and from business users to residential users. If an incumbent LEC is to remain financially solvent while being required to sell services below cost to a particular set of customers to meet a universal service objective, that LEC must charge at least one other set of customers prices that exceed the actual cost of serving them. The more that prices for a group of customers exceeds the cost of serving them, the greater the incentive for a competitor firm (*i.e.*, the entrant) to enter the market and "cream skim" by underpricing the incumbent even if the competing firm incurs costs that exceeds the incumbent's. The new entrants may be producing less efficiently (*i.e.*, at higher cost), at least initially, but will nonetheless be able to remain in business if the incumbent's charges are set too high. For their part, incumbents could lose profitable high-margin business and, in the long term, risk insolvency due to their high and noncompetitive charges. Of course, the other side of the argument is that undercutting the price of the incumbent's service reflects the vibrancy of our American entrepreneurial economy, whether the new entrant is initially efficient or not. Arguably, that is the way businesses get started. The debate goes on!

As competition develops, customers will have increasing choices regarding what to purchase and from which company. In making their selections, customers will be motivated largely by cost considerations (other factors, such as quality of service and ease in changing service provider might enter into such decisions, as well). Historically, large users of telecommunications services, such as the Department of Defense or the television networks, have been able to bypass the facilities of an LEC by constructing lines that fed directly from switches of the IXC into the internal switchboard (PBX) of the large subscriber. In the future, competition to the local loop could come from cable companies, CAPs, local area networks, metropolitan area networks, basic exchange telecommunications radio service, wireless wide area networks, and very small aperture satellite networks and thus give customers, particularly larger users, a greater option in service delivery systems. However, cross-subsidization to protect universal service goals will become increasingly constrained because the pool of LEC monopoly revenues available to support such subsidies is expected to shrink.

With respect to the federal Universal Service Fund which subsidizes the smaller LECs located predominantly in rural areas, there is pressure from IXCs which contribute to the Fund to curb access charges for those subsidies. (LECs have also experienced the growth in bypass through special access.) In addition, as the Commission's Order on competition notes, competitive entry is inhibited to the extent that rates for local exchange service are set below cost, thus allowing only one provider,

the incumbent LEC, access to subsidy flows. The order further notes that if a universal service fund mechanism were available to *all* providers, it could reduce the prices paid by customers and remove a barrier to competition which has served to insulate incumbents from the need to achieve greater efficiencies in their operations.

As with anything in the telecommunications arena, considerations of increased economic efficiency and the best means of promoting competitive entry must be balanced by considerations of meeting the obligations of Provider of Last Resort (the only provider of telecommunications services in a given area designated as such due to the absence of competition). The issue here is the proper regulatory treatment for investments that were made prior to the emergence of competition to deploy and maintain ubiquitous networks to meet universal service goals; such investments might not be recovered due to developing competition ("stranded investments").

The Committee noted that the issue of "stranded investments" poses a major concern to LECs, particularly if the services encompassed by the definition of *universal service* are expanded, as is envisioned in the Committee's vision statement and a source of revenue is not in place to compensate for potentially "stranded investment" in expensive infrastructure to support enhanced applications. The Committee further noted that the Commission is examining Provider of Last Resort obligations in conjunction with universal service funding mechanisms, as the two issues are interrelated.

Given the changing universe of potential providers and beneficiaries of telecommunications services, as well as the expanding array of emerging services that potentially might be classified under the universal service definition, it seems timely for the Commission, in its deliberations on universal service funding mechanisms, to consider the establishment of a new universal service fund and determine potential contributors to the fund and recipients and intended use of the fund, as recommended in the Committee's *Policy Framework*. As previously noted, any new fund (the Commission is currently considering establishment of a Kansas Basic Service Fund) would augment, and not replace, the existing federal Universal Service Fund or any other federal subsidy mechanisms.

C. Process of Encouraging Competition in All Markets

Committee Position. The Committee proposed that certain discrete steps be taken to accelerate competition in the local exchange. The Committee's *Policy Framework* reflects a certain chronological order in which the transition to competition should occur: (1) facilities based local competition; (2) 1 + intraLATA toll; and (3) local resale and unbundling. In addition, the Committee recognizes the need for incumbent telephone companies to provide entrant telecommunications companies a means to interconnect their networks so that customers of each provider can call customers of the other provider. To expedite competition, the Committee recommends the procedure outlined below.

Commission Position. In its Order on competition, the Commission did not set priorities for the sequence in which the transition to competition should occur; any type of competition will be considered. The Commission intended to have the ability to use resale for its value in stimulating competition.

Facilities Based Local Competition

The Committee's *Policy Framework* requires the Commission to authorize telecommunications companies to provide local exchange service provided that the Commission has granted such companies a certificate of public convenience (based on a demonstration of technical and financial viability for entrants) to transact utility business within the state. In essence, such companies would be facilities based carriers – companies that provide telecommunications services to the public over facilities that they own.

The justification for making facilities based competition a priority is that it is considered most beneficial to the public. A facilities based network allows a full range of service innovation; provides a full scope for increased efficiencies; and is capable of exploiting new technologies currently being deployed, such as wireless and fiber and coaxial cable.

1+ IntraLATA Toll Competition

Committee Position. The Committee's *Policy Framework* requires 1+ intraLATA interexchange service by telecommunications companies to be implemented simultaneously with Southwestern Bell Telephone Company's provision of interLATA toll service. Currently, even though providers, other than the LECs, provide intraLATA toll service, the Commission does not require 1+ presubscription (also referred to as local dialing parity or equal access competition) for such service. What that means is that any customer, other than a customer using an autodialer, who wants to use the services of a provider other than an LEC must dial a five-digit access number (10XXX) in addition to the regular ten-digit telephone number. As previously noted, Southwestern Bell is presently not permitted to provide interLATA service pursuant to the Modified Final Judgement of 1982, although this prohibition could be removed with the passage of federal legislation under consideration.

The Committee understands the implications for competition in allowing 1+ presubscription or local dialing parity for intraLATA toll services. However, the issue is one of timing and the Committee recommended that intraLATA 1+ *not* be provided prior to Southwestern Bell's provision of interLATA service. Commission authority to offer intraLATA 1+ prior to authority for Southwestern Bell to provide interLATA toll would undoubtedly accelerate consumer choice and promote competition, and might result in a more rapid reduction of toll prices. However, such a timing sequence would also accelerate the need for rate rebalancing (restructuring) and reduce Southwestern Bell's revenues in the intraLATA market prior to extending that company the opportunity to offset some of those losses through increased revenues in the interLATA market.

Arguably, intraLATA 1+ presubscription should result in increased access charge payments from IXCs to LECs, even if the LECs experience reduced intraLATA toll revenues – after all, the IXCs can be expected to increase their share of the intraLATA toll market and their access charge payments to the LECs should correspondingly increase. However, LECs, on average, receive about 17 cents per minute for toll calls but, on average, would receive substantially less per minute in access revenue, even assuming that IXCs use LEC access facilities. Despite this reduction in revenues, LECs' costs essentially remain the same. Moreover, with increasing competition, the presence of the wireless and fiber services and, prospectively, of cable companies might force access charges down and reduce the LECs' ability to subsidize local rates. While the Committee's *Policy Framework* is structured to bring local rates closer to cost over time by lowering intraLATA toll and intrastate access charges and increasing local rates, this course of action must proceed carefully, deliberately, and in a balanced manner. Moreover, it should be noted that providers making the transition from the five-digit access

number to equal access may need to install additional software, and modify switching accordingly, as well as provide consumers with opportunities to select another carrier. All of this requires some lead time which is one of the reasons for recommending that implementation of 1+ intraLATA by telecommunications companies occur simultaneously with Southwestern Bell's provision of interLATA toll service.

Commission Position. In its Order on competition, the Commission reported finding persuasive evidence in the record suggesting that Southwestern Bell's and United's 1+/0+ advantage for intraLATA competition is a barrier to maximizing the effectiveness of competition. The order further stated that:

> The requirement to enter extra digits in order to use the services of competitors creates an unfair advantage for the local exchange carrier. No matter the devices, mechanisms and technology with which other IXCs and customers may use to get around the presence of this customer inconvenience, it is still a significant hindrance to competition in that it increases the cost to customers of utilizing an alternative provider.

Recognizing the importance of this issue, the Commission assigned a task force to conduct an investigation pursuant to an order issued on August 17, 1994. The staff of the Commission issued a report on June 1, 1995 which addressed: the timing for selecting intraLATA carriers; who should bear costs to convert switches for 1+ presubscription; the best method of recovering costs associated with such conversion (the consensus was through a new access rate element); the basis for that new rate element; continuity for providing intraLATA and interLATA services after 1+ presubscription is offered; and conditions for filing waivers. To date, the Commission has not addressed the timing issue of when to allow intraLATA 1+ service.

Local dialing parity or 1+ presubscription is also included in pending federal legislation (both Senate and House bills). The same legislation would authorize the RBOCs to compete in the interLATA market, provided that, with certain exceptions, they provide such services as separate affiliates (subsidiaries).

Unbundling of Local Loop, Switch, and Trunk Facilities for Resale

Committee Position – Resale and Sharing. The Committee recommended, with respect to resale and unbundling, that a telephone company may at any time offer to sell unbundled local loop, switch, and trunk facilities to telecommunications companies for resale, provided that such telephone company has filed a tariff for approval by the Commission, offering such service at a price above long-run incremental cost. Long-run incremental costs are future costs to the company of adding one new increment of service. The reason for requiring that unbundled services be priced above long-run incremental cost (or LRIC) is to prevent the occurrence of arbitrage.

The *Policy Framework* provides that the timing for requiring resale will be different for Southwestern Bell and the ILECs. Southwestern Bell would have to sell unbundled local loop, switch, and trunk facilities to telecommunications providers for resale once the legal restrictions barring the company from providing interLATA service have been removed. For the ILECs, sale of such unbundled services for resale would not be required before October 1, 1998. However, the Commission could require ILECs to sell those services for resale after that date if industry experience and practices in other jurisdictions so warranted. Telecommunications providers engaging in resale for the first time would

have to receive a certificate of convenience based upon a demonstration of technical and financial viability.

Currently in Kansas, resale is permitted for long-distance services and is widely used in the interexchange business. However, the purchase and resale of local services is limited to certain Shared Tenant Service arrangements and customer owned pay telephones. The Committee recognizes that arguments exist for requiring LECs to provide immediate resale of local services: accelerated competition for providing some services with possible price reductions to consumers; possible limited vertical service innovation (innovations resulting from consolidation of related services), in that resellers could combine their services with monopoly services to create alternative services; and, from the vantage point of entrants, the ability to enter a market without large capital requirement. These arguments notwithstanding, the Committee supports delaying required resale of local services because immediate resale could destabilize the price structure and remove supports for universal service before replacements are in place. Immediate resale could also delay facilities based competition which would provide the greatest overall benefit to consumers and would stimulate investments to a greater extent than would other forms of competition.

Some expansion on these points seems necessary. The reason in the *Policy Framework* for according priority treatment to facilities based local competition over resale is that resellers could be expected to target their services to the most lucrative markets without bearing any of the risk for investment in the network. The least lucrative market is the provision of basic residential dial tone for its own sake. An underlying assumption of the *Policy Framework* is that LECs do not profit from providing this service and neither would resellers. However, to the extent that resale competition exists only for services LECs provide which are priced above cost and the reseller is positioned to undercut those costs without any obligation to bear the costs for noncompensatory basic residential services, which are priced below cost, the LEC's rate structure and capacity to ensure universal service is threatened. With less revenue from the overpriced markets to support basic residential service and with no other compensating universal support revenues, the LEC has less flexibility to maintain local services at affordable rates. This is essentially the same argument that was offered regarding the timing of intraLATA 1+.

Commission Position -- Resale and Sharing. In its Order on competition, the Commission noted that current restrictions on resale and sharing are barriers to maximizing the effectiveness of competition, and that LECs should be required to lift tariff restrictions on resale and sharing where appropriate. To that end, the Commission recommended that a task force be established to evaluate resale and sharing of local exchange services and recommend Commission actions and timetable for modifications or removal of such restrictions where appropriate. Pursuant to the Commission's order, the Resale and Sharing Task Force met six times. On October 30, staff issued a report which concluded that the parties had many divergent views and were unable to agree on most issues. Areas of nonconcurrence include: benefits to be derived from resale; the type of resale restrictions to be lifted; timing (who and when) of lifting restrictions; buildout requirements (requirements imposed on competitors to construct facilities to a defined extent in order to engage in resale activities); whether resale should occur if below cost; whether there should be a wholesale/retail price structure and how that should be determined; and the effect of resale on the LEC's costs. The Task Force did identify issues to be addressed in the hearings during Phase II and certain issues that could be addressed further by the Task Force, such as interconnection standards, various operational issues, nondiscriminatory treatment of operational issues (including setting priorities for requests and proprietary information); equal terms and conditions; and certain implementation issues. However, the Commission did not decide the extent to which resale and sharing barriers exist or what, if anything, should be done about them, but such a decision is expected in summer of 1996.

Committee Position – Unbundling. Closely related to the issue of resale is the issue of "unbundling." What is meant by "unbundling" is the disaggregation or separation into smaller units of the telephone network for purposes of pricing network components separately. All LEC services are comprised of individual network functions, such as local loop functions, switch functions, interswitch transport functions, and signaling functions, which are bundled together in different forms to provide all the LEC's different services. Unbundling is only required for local loop, switch, and trunk facilities when the LEC decides to sell such facilities for resale except for the two conditions governing Southwestern Bell and the other LECs in Section 4 (B) (1) and (2) of the *Policy Framework*. Southwestern Bell and most ILECs have taken the position in Commission proceedings that unbundling is unnecessary and that LECs with less than 50,000 access lines (including all corporate affiliate access lines in the state) should not be required to unbundle network elements. The *Policy Framework* recognizes the need for unbundling at a price above LRIC, as approved by the Commission, as a precondition for resale. However, the *Policy Framework* would require the Commission to approve tariffs for the sale of unbundled local loop, switch, and trunk facilities for sale to telecommunications companies for resale at the time legal restrictions prohibiting Southwestern Bell from providing interLATA services have been removed. In addition, ILECs would not be required to unbundle their services until October 1, 1998, if then.

The Committee's *Policy Framework* does not require that unbundled facilities be subject to a fully allocated cost study because the Committee considers such a study to be unnecessarily time consuming, expensive, contentious, and arbitrary for pricing purposes. (A fully allocated or distributed cost study is used for monopolies. This type of study assumes that products and services comprise the whole market. The cost of service generated by a fully allocated cost study includes overhead, common costs, and rate of return. All nonregulatory costs are excluded.) The reason such studies are considered arbitrary is that an arbitrary rule is generally selected for apportioning common costs (costs incurred in common with other services supplied by the LEC); that selection affects the magnitude of individual fully allocated costs that emerge from the calculation. Disagreements about the selection of rules generally result in bitter and protracted disputes that are both costly and time consuming. However, the Committee agrees with the Commission that such facilities should be subject to LRIC studies for the establishment of price floors.

Commission Position – Unbundling. In its Order on competition, the Commission took the position that unbundling is necessary for effective competition to develop because competitive providers must be able to obtain the functional components of an LEC's network on an unbundled, tariffed basis, so that they can purchase only the components they want. In the absence of unbundled services, end users would never choose the competitive provider because they would have to pay twice for the functions – both to the competitive provider and as part of the LEC's bundled services.

There is considerable debate with respect to the extent of unbundling, the timing of unbundling and how unbundled services should be priced. The Commission found that non-discriminatory access to certain LEC functions and facilities be made available and priced at cost-based rates to the extent demand exists and supply can be cost effective. In order to arrive at those rates, the Commission ordered that unbundled services, to be identified by a task force specifically assigned to review this issue, be subject to long run incremental cost (LRIC) studies and fully allocated cost studies. The Task Force on Unbundling met four times. On October 30, 1995, the Task Force issued a report that indicated that no consensus was reached on virtually all substantive issues. As the Task Force on Unbundling has not determined, among other items, the extent of unbundling to be accomplished, no decision has been made on unbundled costs. However, in its cost study decision of November 1995, the Commission required three components of cost study information that may have implications for unbundling: (1) loop; (2) switch; and (3) transport.

Interconnection

In general, the Committee agreed with the Commission on a general approach to addressing interconnection. In this context, the term *interconnection* refers to the connection of one local provider's telephone network to the network of a second local service provider in order to allow customers of the first provider to place calls to and receive calls from customers of the second provider – a precondition for entrant telecommunications companies to provide local exchange service.

Here is how the Committee's *Policy Framework* proposes to address interconnection. Telephone companies would be required to provide entrant telecommunications companies with the means to interconnect their respective customers, including, but not limited to, toll access, operator services, directory listings, directory assistance, and access to 911 service. Telecommunications companies would have to provide telephone companies corresponding access to such facilities and services. The *Policy Framework* would require telecommunications customers to be accorded number portability and local dialing parity to the extent economically and technically feasible and in conformance with national standards. Moreover, terms and prices for interconnection must initially be negotiated in good faith between the parties, but the Commission would be required to intervene and resolve issues on an expedited basis if no agreement is reached between the parties after 90 days of negotiation.

Obviously, competitors who share the network should pay some part of that cost. As has been noted, the amount of such payment and the terms for interconnection are the crucial issues. There are various methods of addressing the determinations of cost and terms – rulemaking, negotiation, and a combination thereof. In the Order on competition, the Commission ordered the same method be used as was recommended by the Committee for dealing with those determinations – negotiations between the affected parties followed by Commission intervention if the negotiations proved unsuccessful. The Committee's recommendation provided for a 90-day limit on negotiations, whereas the Commission's order did not specify a time limit. The Commission has decided to monitor investigations that are presently ongoing, such as those between Kansas City FiberNet and Southwestern Bell, to determine a realistic time frame.

D. Telecommunications Infrastructure Plan

Chapter III included a summary of the telecommunications needs of end users in Kansas. Chapter IV articulated the applications that should be part of the vision for the evolving definition of universal service. Chapter V examined the extent to which telecommunications providers in Kansas are and will be able to meet those needs and support those applications.

One way of expanding the capacity of telecommunications providers to support desired applications is to require, as a precondition for more relaxed regulation, greater deployment of underlying facilities, such as digital switching and the modification of such switches to support SS7; modification of digital switches and/or overlay networks to support ISDN accessibility; fiber interoffice connectivity to support interactive video applications; and broadband capability for distance learning applications, telemedicine applications, data base access, high-speed data transmission, and other applications requiring high quality video resolution and greater speed communications transmission. The Commission has limited authority to dictate how telecommunications providers invest their money with respect to quality of service considerations. However, the Commission can set certain conditions, service quality, and availability requirements, and provide certain incentives to stimulate investments in the services and facilities noted above.

The *Policy Framework* requires that each telephone company submit a network infrastructure plan with the Commission within a year. Each plan, as part of universal protection, must include schedules, which must be agreed to by the the Commission and respective telephone companies, for deployment of the following facilities and services:

1. SS7 capability throughout the service area of the telephone company;

2. basic and primary rate ISDN capability throughout the service area of the telephone company;

3. full fiber interconnectivity (or technological equivalent) among central offices (every wire center to have at least one fiber route going to another central office); and

4. broadband capable facilities to all schools, hospitals, libraries, state, and local government facilities which request broadband services. (*Broadband* is defined here as the transmission of digital signals at rates equal to or greater than 1.5 megabits per second.)

As described earlier in this report, different telecommunications providers have deployed the above facilities and services to varying degrees and demand for certain services is likely to be greater, at least initially, in certain regions of the state than in others. Therefore, schedules for deployment by the LECs are likely to vary and the Commission will need to establish realistic criteria for determining whether each infrastructure plan is acceptable. The ultimate objective is to set dates for 100 percent deployment of SS7 (or comparable protocol), full accessibility of basic rate ISDN (or comparable service), and 100 percent fiber capable connectivity, and dates providing for a logical sequencing of interactive video deployment to specific customer groups, such as ongoing provision of broadband capable facilities to schools, hospitals, libraries, and state and local government entities which request services at any time after approval of an infrastructure plan. Although the network infrastructure plan would be required of each LEC under the Commission's jurisdiction, similar plans may be filed with the Commission by other certified telecommunications companies. The Commission, in cooperation with the LECs, will establish a process for periodic review and criteria for change.

E. Regulatory Plan

The major focus of the Committee's activity revolved around structuring a proposal for regulatory reform. As previously noted, Southwestern Bell has been operating under the provisions of TeleKansas II, which extended the regulatory features of TeleKansas I for two more years (March 1995-March 1997), and required a commitment by the company to invest capital expenditures of not less than $64 million above normal construction in an education network. The TeleKansas plan froze prices for local rates and provided relaxed regulation for more discretionary and more competitive services. The company has not been subject to rate-of-return regulation, discussed above, since the inception of the TeleKansas plan in 1990. The other LECs have been subject to rate-of-return regulation, as provisions of TeleKansas did not apply to them.

The best means of proceeding with regulation of Southwestern Bell in light of the scheduled termination of TeleKansas II on March 1, 1997 is one issue. On a more general level, the

creation of a propitious regulatory climate that promotes the transition of all the Kansas LECs to competitive markets, stimulates investments in the construction of an advanced telecommunications infrastructure, and simultaneously protects universal service objectives is another issue. Both issues are addressed in the Committee's proposal below.

Under the Committee's regulatory reform proposal, each LEC would be required to file a regulatory reform plan at the same time as it files its network infrastructure plan. Each plan may include, among other features, price caps for local exchange and switched access service, price rebalancing among local exchange, toll and access, and deregulation of all services except:

1. unbundled loop, switch, and trunk facilities offered for resale; and

2. infrastructure commitments to provide at discounted prices broadband capable services to any school, hospital, library, or state and local government facilities in accordance with the LEC's infrastructure plan (irrespective of whether this is a newly, or previously, ordered service), as well as basic rate ISDN capable services at prices which are uniform throughout the company's service area.

The requirements above would also apply to those LECs that elected to remain with rate-of-return regulation, although any LEC making that decision could submit a regulatory plan expressing that intent.

The general intent of the Committee's regulatory reform proposal is to move prices closer to cost so that LECs would be better positioned to compete for toll revenues with the advent of increasing bypass activity (which is expected to cause intrastate access charge revenues to decline) and with the advent of increasing competition from IXCs and other providers once 1+ presubscription is introduced (which is expected to cause intraLATA toll revenues to decline). What is contemplated in the Committee's *Policy Framework* is rate rebalancing or the reduction of intrastate switched access, which is overpriced relative to interstate switched access, to be offset by increased local rates which are assumed to be currently priced below cost. To ensure that intraLATA toll rates do not escalate too rapidly in more sparsely populated regions of the state, LECs would be prohibited from deaveraging basic intraLATA toll prices. This means that some form of subsidy will continue to exist – on average rates in more populated areas of the state will be higher than cost and rates in rural areas will be lower than cost. Nonetheless, the benefits of universal service are considered to outweigh this continued subsidy and pending federal legislation (Senate version) would require continued toll averaging.

Some explanation is needed for a general understanding of the components of the regulatory reform proposal. To that end, the discussion of the proposal is divided as follows: (1) Price Caps – Theory; and (2) Price Caps – Features and Formula in Regulatory Reform Plan. The Committee's position on these points will be addressed first and the Commission's second.

1. Price Caps -- Theory

On July 1, 1989, the FCC implemented price cap regulation for AT&T. This form of regulation was viewed as a short-term bridge to deregulation for the company. It was originally intended as an alternative for rate-of-return regulation for a company that, at that time, had too large a share of the long-distance market to be deregulated but was nonetheless subject to considerable competition. In recent years, many states, such as Delaware, New Jersey, Rhode Island, North Dakota, and California, have applied price cap regulation to RBOCs.

According to economists Acton and Vogelsang (1989), price caps have the following four properties.

1. The regulator directly sets a ceiling for prices to be charged by the regulated firm. The firm may choose prices below the ceiling.

2. Price ceilings are defined for baskets (predetermined sets) of services offered by the regulated firm. They can be expressed as price indexes for these baskets, and different ceilings may apply for each basket.

3. The price indexes are adjusted periodically by a preannounced adjustment factor (or formula) that is exogenous to (external to and not controlled by) the regulated firm.

4. In longer intervals of several years, the adjustment factors, baskets, and weighting schemes for the indexes are reviewed and possibly changed.

Conceptually, a firm which is subject to price cap regulation is allowed a percentage increase in the profit margin on its product that precisely equals the amount by which its productivity exceeded the target rate of productivity growth for the industry. However, if the firm's productivity level is less than that target, the opposite is the case and the firm is penalized by a percentage decrease in profit margin for poor productivity performance. As we have seen, rate-of-return regulation does not provide incentives to promote productivity; indeed, it even encourages a lack of productivity by enabling firms to assign the accounting costs from their unregulated services to their regulated services (cross-subsidization).

As has been noted above, rate-of-return regulation was intended for monopolistic behavior and not for companies with a combination of competitive and monopolistic elements. The benefits derived from a shift from rate-of-return regulation to price cap regulation were outlined in a 1994 decision by the Canadian Radio-Television and Telecommunications Commission on its recommended regulatory framework for telecommunications:

> Price caps allow for more efficient and effective regulation in a number of ways. First, price caps reduce incentives and opportunities for companies to over-invest or misallocate costs. Once caps are established, prices cannot exceed them (apart from the operation of a limited number of exogenous variables), even if the investment base is increased. Second, price caps reduce opportunities to cross-subsidize or engage in anti-competitive pricing, because price changes in one basket cannot be offset by price changes in other baskets. Third, price caps provide incentives for telephone companies to be more efficient and innovative, since shareholders assume more of the risks and rewards of business decisions and retain the benefits of higher levels of productivity. Fourth, price caps can eliminate the need for regulatory assessment of investment, expenses, and earnings between price cap performance reviews.

2. Price Caps – Features and Formula in Regulatory Reform Plan

The purpose of this section is to: describe the features of the price caps that would be included in the regulatory reform plans to be submitted to the Kansas Corporation Commission by the LECs in accordance with the *Policy Framework*, and provide some explanation of the features and

formula governing the proposed price caps. This description and explanation will also address the Commission's own deliberations on the treatment of price caps, which in many respects differs from the Committee's proposal.

A few points need to be stressed at the outset: first, there are many ways to structure price caps in terms of: (a) what services should be included in baskets governed by them; (b) what services should be excluded from those baskets and deregulated or subject to another form of regulation; and (c) the method by which initial prices should be set for services subsumed under price cap plans. Second, a set of conditions has to be determined for shifting deregulated services to services subject to price cap regulation. Third, a decision needs to be made about whether a price floor (minimum price level) should be set for each service within the basket. Fourth, a set of conditions might be established for allowing a regulatory commission to reduce prices within a basket. Fifth, a formula or price index has to be determined to adjust the price ceiling to take into account inflation and other factors, as deemed appropriate. Finally, a schedule for reviewing the price cap formula would need to be fixed. The first four points will be addressed together under the section – Structure of Price Caps and the latter two will be addressed together under the section – Price Cap Formula.

A. Structure of Price Caps – Committee Position

Number of Baskets and Services Included

A price cap is the maximum price for all services taken as a whole within a given basket. The *Policy Framework* affords an LEC the flexibility to determine the prices for individual services within a given basket (e.g.,residential versus single line business) but the total price for all services cannot exceed the cap although it could be lower than the cap. In its proposal, the Committee envisioned applying price caps only to those services which are unequivocally monopolistic, such as residential and single-line business and intrastate switched access. All other services would be price deregulated, although Southwestern Bell would be required to file LRIC studies no later than January 1, 1997 for all its services (setting a price floor) .

The *Policy Framework* provides for the establishment of two principal baskets – one for residential and single-line business service, including touch tone, and the second for intrastate switched access. The intent of the first basket – residential and single-line service – is to promote universal service by protecting consumers against a rapid escalation in local rates. The intent of the second basket – intrastate switched access – is to promote efficiency in intrastate toll and, over a three-year period, move intrastate access charges closer to cost and to the same level of pricing as interstate access. According to recent testimony from a Southwestern Bell employee, current composite (originating and terminating) intrastate access charges are: Southwestern Bell – $.083 per minute; United – $.101 per minute; and other ILECs – $.122 per minute on average. Current composite interstate access charges are $.055 per minute for access charges imposed by Southwestern Bell. (Access charges are the charges generally imposed on IXCs and ultimately passed through to end users to compensate LECs for the connections of IXCs to the local exchange.)

Intrastate Switched Access

The *Policy Framework* provides for intrastate switched access charges equal to, or conceivably lower than, interstate switched access charges within three years, thereby reducing the opportunity for uneconomic bypass in the intraLATA toll market. What is envisioned is that intrastate access charges will decline, as will the intraLATA toll rates charged to customers because all reductions in access charges are to be passed on to customers. This reduction is to be "revenue neutral" in that Kansans collectively should not pay more or less on their monthly bills but should see a shift reflected within their total rates. Even though intrastate access charges will decline, monthly local exchange rates should increase correspondingly. However, individual Kansans will be affected differently by this shift, in that rural Kansans who make, on average, more toll calls per month than their urban counterparts should benefit disproportionately from reduced intraLATA toll rates.

According to testimony from an employee of Southwestern Bell in the access charge docket, Kansas' intrastate switched access charges ranked in the 62nd percentile compared to such rates in other states. The testimony further noted that Kansas residence rates rank between the 29th and 43rd percentile and Kansas business rates rank between the 7th percentile and the 19th percentile – a clear indication that Kansas local rates are extemely low and are being subsidized, at least in part, by intrastate switched access. The same testimony indicated that bypass of Southwestern Bell's switched access for interstate, intrastate, and intraLATA calls is already occurring. For example, the Regents universities and state agencies receive these services via KANS-A-N, the state's leased network, and Volume/Payless Shoe Corporation receives those services directly from IXCs.

Price Floors

For all services subject to a price cap and for all services provided by Southwestern Bell as of July 1, 1996, a *price floor* must be established. To use a definition from the Commission's Order on competition, price floors are intended to protect customers from the possibility of long-term monopolization of otherwise competitive service markets through temporary below cost pricing, or price cutting, by a dominant firm which is intended to drive competitors out of the market. Price floors are to be based on long-run incremental cost (LRIC) studies, although cost studies will be performed to determine price floors upon complaint.

The *Policy Framework* requires an LEC to "impute" or assign to itself the same price for access to the local exchange that the LEC charges to competing providers for such access services. The intent here is to create a "level playing field" between LECs and their competitors. As has been previously noted, IXCs are authorized to compete with LECs in the intraLATA toll market. If the access price charged by the LEC to IXCs is too low, it handicaps the LEC. Conversely, the LEC might charge the IXCs such a high price for access to the local exchange that the LEC realizes a large incremental profit but forgoes some of that profit when it uses access for its own sale of intraLATA toll services. Under those conditions, the LEC will have set such a low price for access to execute its own sale of intraLATA toll that the IXCs will be at a competitive disadvantage. In either case, too low an access price or too high an access price may result in uneconomic bypass because consumers may be purchasing toll service from an inefficient supplier. The intent of the *Policy Framework* is to protect competitors from unfair access charges by requiring that such charges be imputed as part of the price floor for toll services offered by LECs on a total service basis (all toll service baskets).

Reregulation of Deregulated Services

The *Policy Framework* allows for the reregulation of any service which has had its price deregulated, upon showings to the Commission that:

1. the service is essential for particular residential or business users;

2. there is no alternative supply for the service; and

3. the price of the service has risen more rapidly than the price of basic residential local service.

If these three conditions are satisfied, the service in question is considered to still be monopolistic and essential and consumers are considered to derive little or no benefit from the deregulation of such service. If a service is reregulated, it would be placed in its own separate basket and subject to a price floor, similar to other services, such as residential and single-line business and intrastate access. It would not be subject to rate-of-return regulation.

Reduction of Prices Within a Price Cap

Each LEC is required to file with the Commission a network infrastructure plan which, among other provisions, will identify that LEC's schedules for the provision of basic ISDN capable services at uniform rates throughout the LEC's service area and broadband capable services at discounted rates to schools, hospitals, libraries, and state and local government facilities. The regulatory plans filed by LECs will also include commitments to provide such services under the above terms. The Commission would be authorized to reduce rates charged for such services (in essence, reregulate such services in terms of price) if those commitments have not been met.

Initial Prices

With respect to setting initial prices for services to be subsumed under the price caps, the Committee recommended the use of the existing prices prior to implementation of price cap plans. The *Policy Framework* requires Southwestern Bell, but not the ILECs, to file LRIC studies for all existing services using studies completed after April 1, 1994. There is no explicit requirement that these studies be linked to initial prices of services in the company's price cap plan. Moreover, no cost studies will be performed for any purpose other than to determine price floors, upon complaint. For purposes of price setting, the Committee considered fully allocated cost studies to be sufficiently unreliable, in addition to time consuming and contentious. Therefore, except in response to complaints, the Committee did not recommend their use in setting initial prices.

Structure of Price Caps – Commission's Order

The *Policy Framework*, like the Commission's Order on competition, embraces the use of price caps as a means of alternative regulation. However, there are some salient differences.

Number of Categories and Services Included. The Commission categorizes services into three categories: (1) competitive; (2) noncompetitive – essential; and (3) noncompetitive – nonessential. For the noncompetitive – essential category, price caps and price floors would be imposed. For the competitive category, only price floors would be imposed. The Commission postponed any decision on setting price caps for the noncompetitive – nonessential category until Phase II of its investigations. There may be baskets of services within the various categories. The Commission also does not specify the services to be included in each basket but instead requires the LECs to file proposals specifying services for Commission review. The *Policy Framework*, in contrast, has only two baskets 1) price caps for residential and single-line business services, and 2) intrastate switched access; and for all other services, prices will not be capped.

Intrastate Switched Access. The issue of intrastate access charges has been addressed in a separate docket and is not part of the Commission's Order on competition. On October 24, 1995, the Commission issued an order on access charges which set a technical hearing on a proposed interim plan proposed by staff. That hearing took place November 28-29. The order noted that all companies generally agreed that intrastate access charges needed to be reduced. However, Southwestern Bell had divergent views from the IXCs on the amount and timing of the reduction and the need for recovery from some other source. A decision on the technical hearing is pending.

A concern raised by an employee of Southwestern Bell, who testified at a recent Commission hearing, was that the proposed staff interim plan did not have rate rebalancing as an objective. As we have seen, rate rebalancing or reduced intrastate access charges being offset by increase local rates is central to the *Policy Framework*.

Price Floors. The Commission made no decision in its Order on competition regarding the method to be used in assigning access charges to LECs that provide intraLATA toll in competition with other carriers. However, the Commission indicated in its Order on intraLATA toll competition that imputation is a necessary competitive safeguard and postponed a decision to Phase II of the competition docket or to deliberations on another docket under consideration. The *Policy Framework* calls for such charges to not exceed those paid by telecommunications companies to the LEC, to be imputed or assigned to the price floor for toll service.

Reregulation of Deregulated Services. The Commission only intends to price deregulate services initially if there is evidence that effective competition exists to provide those services. However, a provision in the Commission's Order on competition sets the framework to reclassify services among the three categories (competitive, noncompetitive – essential, and noncompetitive – nonessential) if circumstances so warrant. In contrast, the *Policy Framework* assumes that all services other than residential, single-line business, and intrastate access are competitive unless certain specified conditions indicate otherwise, in which case price caps may be imposed.

Reduction of Prices Within a Price Cap. The Commission's order does not single out certain infrastructure commitments to serve as the basis for reductions in pricing, if such commitments are not met. In fact, infrastructure commitments are not even part of the Commission's alternative regulatory scheme in the Order on competition, although another docket on quality of service is addressing modernization plans and requirements. Conceivably, LECs may be required to file infrastructure plans under this docket. Moreover, ILECs that are borrowing money from the Rural Electrification Administration are directly affected by requirements to file modernization plans.

Initial Prices. The Commission established a Cost Study Work Group to work toward consensus on cost study specifications. The Work Group met seven times and, according to its report,

which was issued on September 29, did not agree on the model to be used for LRIC studies and the level of confidentiality to be afforded cost studies. In November 1995, the Commission acted on this report and required Southwestern Bell and Sprint/United to perform a fully allocated cost study and LRIC studies for local service, toll services, access, link, port, and transport and submit these studies to the Commission by April 1996. The ILECs are presently exempt from this requirement for LRIC costing. Traditional fully allocated cost studies are required for use in creating the Kansas Basic Service Fund. The *Policy Framework* requires Southwestern Bell, but not the ILECs, to file LRIC studies for all existing services using studies completed after April 1, 1994. There is no explicit requirement that these studies be linked to initial prices of services in the company's price cap plan. In contrast, under the *Policy Framework*, no cost studies will be performed for any purpose other than to determine price floors, upon complaint.

B. Price Cap Adjustment Formula

Committee's Position. The Committee proposed a price cap formula of CPI-X+Y. For most of us who are not steeped in telecommunications regulation, some explanation of this formula is probably in order.

Price caps need realignment for two reasons. The first reason is inflation or deflation over which an LEC has no control. If not adjusted in some manner, unchecked inflation can squeeze profits from an LEC. The second reason is productivity which should increase with technological advances, thus making the LEC more productive. With increased productivity, the LEC should be able to provide services at decreasing unit costs and those reductions should ultimately result in savings to consumers. The intent of price cap adjustment formulas is to allow the price ceiling to rise automatically each year by a percentage equal to some widely accepted index of inflation, such as the Consumer Price Index (CPI) proposed by the Committee. (Alternative measures exist for the factor, to be selected on a rational basis.) From that inflation factor, a certain percentage, usually referred to as "X," is subtracted. The "X" factor is the productivity factor. It could be based on several premises, such as the industry's historic rate of productivity growth, its target rate of productivity growth, or, as recommended by the Committee, its national rate of productivity growth.

The way it works is as follows. Productivity growth offsets inflation in a firm's costs. For example, if inflation for wages and production was 5 percent in 1994 and the national growth rate of productivity in the telecommunications industry was 3 percent in 1994, if CPI (5) - X (3) = 2, any LEC with average productivity would have experienced a nominal cost increase of 2 percent in 1994. However, if an LEC is more productive than the national average and had an increase in productivity growth of, for example, 4 percent (1 percent more than the national norm), that LEC would also be allowed a 2 percent increase, the same as the LEC with average productivity. Of that 2 percent, however, 1 percent would be an increase in nominal cost and the remaining 1 percent would be an increased profit margin on that LEC's product or service.

That explains CPI-X, but the Committee elected to introduce another factor, "Y," which needs some explanation. The "Y" factor is intended to offset the loss in revenue estimated for the following year due to reductions in both access charges and the imputed access portion of intraLATA toll charges provided by LECs. However, the "Y" factor should not account for reductions in revenue due to market share. There is some precedent in the formula proposed by the Committee – CPI-X+Y.

According to Dr. Temin, this formula was used in Great Britain for natural gas pricing, although "Y" was used in that case for exogenous events at the retail level.

As previously noted, the Committee's *Policy Framework* proposes to reduce intrastate switched access to equal interstate switched access over a period of three years, as long as corresponding changes to local service price caps are made. The effect of that policy would be reduced access payments from IXCs to LECs and a reduced amount that the LECs may impute to themselves for providing intraLATA toll services themselves. The Committee views this loss as temporary. Once intrastate access levels reach interstate levels and revenue neutrality has been reached, the intent is to delete the "Y" factor from the price cap formula, thus transforming the formula from CPI-X + Y to CPI-X.

The Committee also recommended that total increases in the price cap adjustments to residential and single-line business services be limited to $1.50 per line per month in each year, except to the extent that the Commission authorizes a greater amount. The intent of the *Policy Frame* is that the total increase in local rates would be limited to $4.50 per month over the initial three-year period. Presumably, the monthly limit would prevent any rapid rate increase to customers who would ultimately have to bear the cost.

Finally, the Committee recommended that the price cap formula be reviewed every five years in order to adjust the productivity offset.

Commission Position. In contrast to the Committee's position with respect to the price cap adjustment formula, the Commission has not yet made any specific recommendations although the Commission considers the "Y" factor to be an issue of rate rebalancing, to be treated separately outside the price cap formula. In its Order on competition, the Commission recognized that once price caps are set, there will be a need for periodic automatic adjustment factors which reflect general telecommunications industry trends. The Commission deferred any decision of the specific nature of such adjustment factors until Phase II of the proceedings, but acknowledged the need for both a productivity and inflation index. In Phase II, the Commission intends to collect more evidence on other factors upon which it may be appropriate to base an adjustment factor. One example cited was a quality of service adjustment factor. In Phase II, the Commission also intends to consider potential alternatives to automatic adjustment, such as a long-term rate freeze of the sort applied to Southwestern Bell under TeleKansas.

As with periodic adjustment factors, the Commission postponed any decisions concerning periodic reviews of the price cap formula until Phase II, although the Commission recognized the need for such reviews in its Order on competition. In Phase II, the Commission plans to determine whether price caps should be subject to a set time table for realignment in light of profits, and if so, what that period should be.

CHAPTER IX

Mechanisms to Assist Consumers

For the most part, the Committee assumes that a proper regulatory environment will provide many of the incentives needed to encourage companies to install the necessary technologies and provide the necessary services to support the applications identified above. However, "gaps" will exist and ubiquitous delivery of services identified in the Committee's vision statement is not likely to occur without other incentives. Therefore, at least one financing mechanism is proposed below that could complement the Committee's proposed regulatory framework – the Telecommunications End-User Support Fund. A Board would be established to administer the Fund, provide a clearinghouse function for telecommunications grant proposals and other resources, organize information on emerging services and technologies, and advocate for and support the development of telecommunications programming and services. These structure and intended activities of the Board are described below.

Establishment of a Board

The Committee recommended that the Legislature establish a Board within the Kansas Corporation Commission. Board members will serve in an advisory capacity to the Commission. Board members will receive travel expenses and per diem. Appointments to the Board will be for fixed periods and established so as to minimize the number of members being replaced in any one year. The Board will sunset after five years.

Responsibilities of the Board. The Board will:

- **Be guided by and promote the vision statement addressed above.**

- **Administer the Telecommunications End-User Support Fund.**

  Purpose. The Fund will support the applications identified in the vision statement above to finance end user premises equipment, equipment installation, training, and expenses associated with Board administrative activities. In addition, funding will be set aside specifically to support telecommunications services for persons with special needs. The Fund will be sunsetted in five years.

  Revenues. Revenues to capitalize the Fund will come in a competitively neutral manner from all telecommunications providers. It is envisioned that approximately $8 million to $10 million would be generated annually and credited to the Fund, assuming that 1 percent of existing intrastate telecommunications revenues could be dedicated for that purpose. Therefore, the Fund should be capped at $50 million ($10 million multiplied by five years). Funding will be collected through a surcharge on customers' bills for telecommunications services (defined as the provision of services for the transmission of telephone messages, or two-way video or data messages in the Weber Temin Policy Framework) and/or through other methods, such as dedicated transfers from the Economic Development Initiatives Fund.

End Users. Prospective end users will include but not be limited to: cities and counties; local law enforcement; hospitals; K-12 schools; postsecondary educational institutions; local libraries; Telecommunity Centers and Televillages; nonprofit service organizations; and business or research consortia engaged in research endeavors. Businesses will not be eligible for funding.

Fund-Related Responsibilities. The Board will be responsible for: writing requests for proposals; reviewing grant, matching grants, or loan proposals from prospective end users; developing criteria for grant and matching grant awards or loans; approving grants, matching grants, or loans; developing reporting and monitoring procedures; establishing a means of informing prospective end users about the existence of the Fund; and establishing other procedures necessary to administer the Fund effectively.

- **Provide a Clearinghouse Function for Telecommunications Grant Proposals (NTIA) and Other Resources.** The Board will provide information to prospective grant applicants in a timely manner about requests for proposals and information about possible contacts for coordination and partnerships. Prospective applicants for NTIA and similar grants will not be inclined to submit proposals to the Board for review unless those applicants perceive that they will derive some sort of tangible benefit from such submittal. The Board will not approve or disapprove NTIA or other telecommunications proposals. Its activities will be confined to coordination efforts, referrals, and technical assistance.

- **Organize Information on Emerging Services and Technologies.** There are three general sources of information that will assist the process of making prospective end users aware of various applications:

  - the marketing efforts of commercial providers;
  - the marketing efforts of public agency providers to their primary constituencies; and
  - the more broadly focused information services of local libraries for the public.

While the importance of the marketing efforts undertaken by commercial providers is recognized, so is the importance of making independent and objective information available to the public. To that end, it is recommended that the Board assume responsibility for organizing information on emerging services and applications (some of which is available in trade journals). This information could be compiled periodically in the form of an annotated bibliography and then given to the State Library to disseminate on the World Wide Web or Blue Skyways to all local libraries and other interested parties.

- **Advocate For and Support the Development of Telecommunications Programming and Services.** The Board will promote the development of telecommunications programming and services that:

  - combine and connect in a technologically neutral manner a wide array of equipment in networks and on consumer premises;

  - with respect to applications and software, allow consumer access to organized and easily understood information; and

  - make investments in people who use new technologies to create, construct, manage, and train.

- **Submit an Annual Progress Report.** The Board will report annually to the Governor, the Legislature, and the public the activities undertaken to accomplish the five major responsibilities outlined above.

Composition of the Board. The Governor will appoint, on a geographically representative basis, a total of seven voting Board members, of whom no more than four may be from the same political party as the Governor. In addition, three nonvoting members will serve on the Board, representing the Kansas Corporation Commission, the Kansas Division of Information Systems and Communications, and the Kansas Information Resources Council, in the capacity of Chief Information Architect.

Finally, the Committee envisions that the proposed Board will coordinate its activities with those of other telecommunications task forces and working groups operating throughout the state. A brief description is included in **Appendix VII**.

CHAPTER X

Economic Aspects of Telecommunications Deregulation

General Findings

One of the directives of the resolution which established the TSPC was a directive to identify present and anticipated trends in telecommunications technologies and services and their economic impact on the citizens and businesses of the state, including, but not limited to, low and moderate income households, small businesses, and high technology businesses. Regional differences in economic impact were also to be identified. Dr. Temin presented to the Committee a report titled *Economic Aspects of Telecommunications Development* and the salient points are summarized below. That report noted that research suggests that telecommunications is very highly correlated with economic development, leading to the conclusion that modern economic activity cannot exist without adequate telecommunications service.

Other research was based on a 1983 study by A. Jipp comparing telephones per capita to economic growth or per capita GDP. Using various data sets, researchers confirmed that telephones-per-capita and measures of economic status are highly correlated across countries and over time. However, a problem they encountered is an unambiguous determination of cause and effect. At the macroeconomic level, existing studies suggest a mutual dependence between telecommunications and economic growth or two-way causation. Wealthier countries are better able to afford investments in telecommunications infrastructure, and consumers have higher disposable incomes with which to obtain residential telephones. More developed countries are consequently more likely to have greater telecommunications quantity and quality. This results in more efficient management by businesses of information and greater productivity.

Certain microeconomic studies, by comparison, have attempted to explain how telecommunications contributes to efficient production. DRI developed an input-output model to test the hypothesis that technological improvements in telecommunications have resulted in resource savings to companies and thus greater economic efficiencies. Although the assumptions used in the model design have been criticized, the DRI model was used by Deloitte and Touche to rank industries by their intensity of telecommunications use. Services, particularly finance, insurance, and real estate, were ranked as the chief users. In their *Pennsylvania Infrastructure Study* (1993), Deloitte and Touche used the DRI input-output model to assert that improved telecommunications had saved resources worth $100 billion in 1991 dollars since 1963.

On the macroeconomic level, there appears to be a correlation between telecommunications and economic growth, although causation is difficult to establish. On the microeconomic level, it appears that telecommunications contribute to economic growth through increased production efficiency.

Dr. Temin's report cites several examples of specific firms that have used telecommunications to increase efficiency:

1. the use by Chrysler Corporation of a telecommunications-based "computer integrated manufacturing system" to streamline inventories by assembling cars according to customer specifications;

2. the use by Foremost McKesson of a scanner that can identify a pharmaceutical product through its bar code and transmit relevant information using telecommunications links to a main computer;

3. the practice of lean retailing in the apparel industry which relies on data transmittal through electronic data interchange between manufacturers or retailers and suppliers;

4. the use by IBM of the telecommunications network to enable employees to work on the same document using Notes software; and

5. the practice of employee telecommuting used by AT&T and, for employees with disabilities, American Express.

Studies of various industry practices have revealed that improvements in telecommunications technology and infrastructure change the production capacities of many industries. The service sector derives greater benefit from telecommunications than the manufacturing sector because the former is more information-intensive than the latter. Nonetheless, results from surveys conducted by Deloitte and Touche for a 1991 *New Jersey Infrastructure Report* disclosed that most businesses, regardless of industry, considered that they were becoming more dependent on information and telecommunications. This leads to the inescapable conclusion that modern economic activity does not take place in the absence of telecommunications investment. If applied to the Committee's work product, discussed above, this conclusion also suggests that a well conceived regulatory climate that promotes competition and stimulates investment should promote greater business efficiencies and ensuing economic growth.

Kansas-Specific Findings

To attempt an explanation of the correlation between telecommunications and employment in Kansas, Dr. Temin undertook some regression analysis. What he discovered is that population change is related to employment change but it is a complicated dynamic. While certain regions of the state attracted or lost population over time, job creation or loss is only part of the overall process determining an increase or decrease in population.

With respect to the effect of employment in the telecommunications industry in Kansas, Dr. Temin estimated that total employment was approximately 20,000. This total includes employees of Southwestern Bell, other LECs, IXCs (over 6,000 employed by Sprint), and other telecommunications suppliers. The multiplier used was 2.2, which was supplied by the Bureau of Economic Analysis and modified by Southwestern Bell. A total of 20,000 employees multiplied by 2.2 results in a total job impact of 44,000. This is over 4 percent of total employment in Kansas in nonfarm jobs. Dr. Temin noted that it is difficult to forecast employment trends in the telecommunications industry. On the one hand, increased efficiency in telecommunications firms has resulted in downsizing. On the other hand, greater competition will encourage entry into the industry, thus creating new jobs. However, it is impossible at this time to determine which of the two trends will dominate.

On a less theoretical note, one might ask how Kansas companies have used telecommunications. In *Successful Rural Information Networking: Case Studies in Economic and Community Development Through Telecommunications*, Volume II (1995), Rod Thomasson and Jay Gillette of the Docking Institute of Public Affairs, Fort Hays State University, presented six case studies which profile the innovative use of telecommunications by three business ventures and three nonprofits.

One of the companies profiled is CPI Qualified Plan Consultants Inc., which is located in Great Bend. This company sells its expertise in employee benefit plans to small and medium-sized businesses.

CPI is divided into highly specialized modular teams that are assigned specific aspects of a client's plan. The number of teams varies according to the type of plan to be managed. What links all the teams is the use of the company's computer, voice, and data transmission facilities. This computer network enables a standard 401-K plan to be managed by four teams as follows. One team monitors employee investment choices, receives the client's payroll information, and makes investment orders to brokers. Another team provides employee benefits on quarterly cycles. A third team handles payouts and loans. A fourth team deals with quarterly accounting required by law.

The advantages of this flexible team approach are cited by authors Thomasson and Gillette as follows: (1) specialization of employees which results in increased efficiencies with a particular function, reduced training costs, and mistakes; (2) increased productivity; and (3) quicker adoption of new technologies with the knowledge needed to deal with new plans and modify existing plans.

One might conclude from the general and Kansas-specific discussions above that communication technologies have an effect on economic development in terms of both employment and greater efficiency in operations even if that effect may not always be easily quantifiable.

CHAPTER XI

Committee Recommendations to the 1996 Legislature

The Committee made two recommendations for legislative consideration:

1. The Committee's vision statement, *Connection to the Future: A Vision of Kansas Telecommunications for the 21st Century*, should be incorporated into a concurrent resolution, to be introduced during the 1996 Session. (See Chapter IV for the vision statement.)

2. The Committee's proposal to establish an advisory board within the Kansas Corporation Commission should be incorporated into a bill, to be introduced during the 1996 Session. The board's major responsibilities would include:

   a. providing a clearinghouse function for telecommunications grant proposals;

   b. organizing information on emerging services; and

   c. administering the Telecommunications End-User Support Fund. (See the Committee's proposal in Chapter IX.)

BIBLIOGRAPHY

Baumol, William J. and J. Gregory Sidak. *Toward Competition in Local Telephony*. Cambridge: MIT Press, 1993.

Borrows, John D. *et al. Universal Service in the United States: Dimensions of the Debate*. The National Regulatory Research Institute Columbus: Ohio State University, June 1994.

Brock, Gerald W. *Telecommunications Policy for the Information Age. From Monopoly to Competition*. Cambridge: Harvard University Press, 1994.

Brown, Lincoln E. Testimony from Southwestern Bell Telephone before the Kansas Corporation Commission. Docket No. 190-383-U, November 9, 1995.

"Communications Firms Show Growth in Computer Technology." *Kansas City Star*, November 30, 1995.

Congressional Quarterly Special Report: The Fine Print: A Side-by-Side Comparison of the House and Senate Telecommunications Bills 53 (Supp. to 37), September 23, 1995.

Crandall, Robert W. and J. Gregory Sidak. "Competition and Regulatory Policies for Interactive Broadband Networks." *Southern California Review*, Vol. 68, No. 5, July 1995, 1203-1237.

Dowling, Michael J. *et al.* "Strategies for Change in the Service Sector: the Global Telecommunications Industry." *California Management Review,* Spring 1994, pp. 57-88.

Heldman, Robert K. *Future Telecommunications: Information Applications, Services & Infrastructure.* New York: McGraw-Hill, Inc., 1993.

Kahn, Alfred. "Letters to the Editor." *The Wall Street Journal,* November 10, 1995.

Kansas Corporation Commission. *In the Matter of a General Investigation into Access Charges*. Docket No. 190-383-U, October 24, 1995.

Kansas Corporation Commission. *In the Matter of a General Investigation into Competition within Telecommunications Industry in the State of Kansas*. Docket No. 190,492-U, May 5, 1995.

Kansas Corporation Commission. *The Telecommunications Infrastructure Study*, 1994.

Kobb, Bennett. "Telecommunications." *IEEE Spectrum*, January 1995, pp. 30-34.

Lawton, Raymond W. *et al. Measuring the Impact of Alternative Regulatory Pricing Reforms in Telecommunications*. The National Regulatory Research Institute. Columbus: Ohio State University, December 1994.

McDonald, Guy for Jack Hughes. *Task Force Final Report to the Kansas Corporation Commission under Docket No. 190,492-U*, October 30, 1995

Mitchell, Bridger and Ingo Vogelsang. *Telecommunications Pricing*. Cambridge: Cambridge University Press, 1991.

O'Neal, Carroll. *Resale and Sharing Task Force Report to the Kansas Corporation Commission*, October 26, 1995.

Organization for the Protection and Advancement of Small Telephone Companies (OPASTCO). *Keeping Rural America Connected: Costs and Rates in the Competitive Era*, 1994.

Rendleman, John. "Putting ISDN on the Map." *Communications Week*, May 29, 1995, pp. 43-46.

"Survey of Telecommunications: the Death of Distance." *The Economist*, September 30, 1995 (entire issue devoted to the Survey).

Thomasson, Rod and Jay Gillette. *Successful Rural Information Networking: Case Studies in Economic and Community Development Through Telecommunications*. Hays: The Docking Institute of Public Affairs, Fort Hays State University, Volume II, 1995.

Weber Temin & Company, *A Dozen Proposals: Expanded and Compared with the KCC Competition Order*, June 14, 1995.

Weber Temin & Company, *A Dozen Proposals* (later became *A Proposed Policy Framework for Telecommunications in Kansas*; May 10, 1995; final version August 31, 1995).

Weber Temin & Company, *Economic Aspects of Telecommunications Development*, August 16, 1995.

Weber Temin & Company (Previously T.E.L.A. Group). *Evolving Services and Technologies*, April 1, 1995.

Weber Temin & Company, *Potential Use of Government Networks*, August 10, 1995.

Weber Temin & Company, (Previously, T.E.A. Group). *Telecommunications Policy Issues: Competition, Interconnection, Pricing, Universal Service, and Infrastructure Deployment*, April 19, 1995.

Weber Temin & Company, *Telecommunications User Needs Assessment* (three volumes), October 25, 1995.

Weber Temin & Company, *Theory and Practice of Price Caps*, May 9, 1995.

the economic prosperity of the counties of Woodson, Greenwood and Sedgwick, should such counties determine to join in such joint port authority; and

WHEREAS, The Commission of Butler County, Kansas, proposes to pass a resolution to create a joint port authority by cooperative agreement with the City of El Dorado, Kansas, and such other cities and counties as determine to join in such joint port authority; and

WHEREAS, The Commission of the City of El Dorado, Kansas, proposes to pass an ordinance to create a joint port authority by cooperative agreement with Butler County, Kansas, and such other cities and counties as determine to join in such joint port authority; and

WHEREAS, The Kansas Legislature encourages intergovernmental cooperation: Now, therefore,

Be it resolved by the House of Representatives of the State of Kansas, the Senate concurring therein: That the legislature of the State of Kansas, in accordance with the provisions of K.S.A. 12-3402, hereby and in advance approves the creation of such joint port authority as the Commission of Butler County, Kansas, the Commission of the City of El Dorado, Kansas, and such other governmental units in the counties of Woodson, Greenwood and Sedgwick, including such counties, may by appropriate resolutions or ordinances determine to create by cooperative agreement, with the name of such joint port authority to be set forth in such cooperative agreement.

Adopted by the House March 23, 1994.

Adopted by the Senate April 1, 1994.

CHAPTER 371

SENATE CONCURRENT RESOLUTION No. 1627

A CONCURRENT RESOLUTION directing the development of a state strategic plan for telecommunications.

WHEREAS, The telecommunications industry has undergone tremendous change in recent years; and

WHEREAS, New levels of competition exist or may soon exist in the industry which will fundamentally alter the economic conditions in which telecommunications public utilities operate; and

WHEREAS, Greater competition in telecommunications services demands consideration of relaxed regulation of such services; and

WHEREAS, There should be representation from end users, state agencies, the Legislature and telecommunications service providers in formulating any future regulatory policy governing telecommunications given the wide array of affected parties; and

WHEREAS, Movement toward relaxed regulation of telecommunications services is desirable if it is accomplished in a systematic and logical manner based on accurate information, public analysis and debate: Now, therefore,

Be it resolved by the Senate of the State of Kansas, the House of Representatives concurring therein: That there shall be established a telecommunications strategic planning committee which shall develop a statewide strategic plan for telecommunications. Such plan shall contain suggestions for future action by the legislature, the corporation commission and telecommunications service providers; however, the committee's function shall be advisory in nature.

The telecommunications strategic planning committee shall consist of six legislators appointed by the Legislative Coordinating Council. Three of the legislators must be Republicans and three must be Democrats. Three must be members of the House of Representatives and three must be members of the Senate. The committee shall also include a representative of the Department of Administration designated by the Secretary of Administration, a member of the staff of the State Corporation Commission designated by the chairperson of the commission and one representative of each of the following appointed by the Legislative Coordinating Council: Certificated facilities-based interexchange carriers, certificated resellers, certificated large local exchange carriers, certificated small local exchange carriers, cable companies, medical centers, residential end users, large businesses and small businesses. The chairperson of the committee shall be appointed by the Legislative Coordinating Council; and

Be it further resolved: That legislative members shall receive compensation and mileage as authorized by the Legislative Coordinating Council; that nonlegislative members shall receive no remuneration, except, subject to appropriations, travel and other expenses as shall be allowed by the Legislative Coordinating Council; and

Be it further resolved: That the committee may commence formulation of the strategy upon adoption of this resolution by both the Senate and the House of Representatives. In formulating a strategy, the committee shall solicit input from potentially effected interests which shall be as diverse and comprehensive as feasible, including educators, health care providers, librarians, economic development specialists and all types of communications providers, including over-the-air broadcasters, from both rural and urban areas.

nications technologies and services and their economic impact on the citizens and businesses of the state, including, but not limited to, low and moderate income households, small businesses and high technology businesses. This report shall address regional differences in economic impact and shall be presented to the 1995 session of the legislature; and

Be it further resolved: That the Kansas Legislative Research Department shall provide committee staff as needed. The committee shall request such other advisory staff assistance as the committee considers necessary and state agencies shall cooperate with the committee in providing such assistance. Furthermore, subject to appropriations, the Legislative Coordinating Council, after consultation with the Corporation Commission, may contract with a consultant for the duration of the development of the strategy. Such consultant would be authorized to provide technical assistance, frame policy issues and draft necessary committee reports. The consultant should work directly with the committee and such subcommittees as may be created; and

Be it further resolved: That the chairperson of the telecommunications strategic planning committee may appoint such subcommittees as may be necessary to examine in greater detail various issues raised in formulation of the strategic plan. The subcommittees should reflect a representation of public sector members, legislators and telecommunication service providers. However, at least one legislator must be assigned to each subcommittee; and

Be it further resolved: That the State Corporation Commission, in cooperation with the Department of Administration, is directed to submit to the National Telecommunications and Information Administration of the United States Department of Commerce an application for a state telecommunications planning grant on or before May 12, 1994; and

Be it further resolved: That the Corporation Commission shall upon passage of this resolution open one or more generic dockets to investigate the level of competition for each regulated or flexibly regulated telecommunications service under its jurisdiction. In addition the commission should:

(a) Periodically assess the level of competitiveness of such services and emerging services with the intent of encouraging development of effective competition for telecommunications services where feasible, including the removal of existing barriers to entry;

(b) establish a classification system for telecommunications services based on the degree of competition faced by providers of the particular service;

The committee shall provide two written reports to the Legislature. An interim report shall be made to the 1995 session of the Legislature. The final report shall be made by January 1, 1996. The committee report to the 1996 Legislature should include, but not be limited to, the following:

(a) A definition of the term "telecommunications infrastructure" and a procedure for possible modification of that definition;

(b) a statewide inventory of the existing telecommunications infrastructure and an assessment of the telecommunications needs of end users;

(c) identification of applications for telecommunications of importance to the state and a method of setting priorities for their development. This analysis should include a plan for promoting such development, including: A means of providing for coordination and cooperation among public institutions, as well as private users, for purposes of efficient and economical acquisition and use of such applications; a means of fostering interconnections and interoperability among the networks used for such applications; and a process for informing prospective end users about the use and availability of new technologies associated with such applications. Outcomes to be considered include: Improving the competitiveness of Kansas businesses; improving the quality, affordability and availability of health care; improving the quality of and accessibility to primary, secondary and postsecondary education; increasing the efficiency, effectiveness and responsiveness of state and local government; and affording citizens greater exposure to cultural and recreational amenities;

(d) based on generic docket findings of the corporation commission, a recommendation to the legislature concerning the form of regulation that would be appropriate for services which remain regulated;

(e) formulation of recommendations to the Governor, the Legislature and Corporation Commission on key concepts and changes to be incorporated into state regulatory policies and policies adopted by the division of information services and communication within the department of administration for the state information network; and

(f) an evaluation of the creation and retention of jobs in the telecommunications industry in Kansas. The interim report to the 1995 legislature should relate the committee's progress on these issues to the extent they may be resolved.

Be it further resolved: That subject to appropriations, the Legislative Coordinating Council shall contract for the development of a report to identify present and anticipated trends in telecommu-

(c) establish standards and procedures by which the rates, terms and conditions of telecommunications services are regulated in accordance with their classification as in clause (b) above;

(d) ensure that regulated services will not subsidize competitive or unregulated services;

(e) define universal service, determine the extent to which it has been achieved in every region of the state and establish appropriate policies to insure universal service in high-cost areas of the state;

(f) define criteria for provision of "basic telephone service" and the availability and provision of such service in a competitive environment;

(g) develop a procedure for ensuring the quality of telecommunications services; and

(h) define "lifeline telephone service" and specification as to the appropriate means of funding the provision of such service.

Such analysis need not be performed on telecommunications services previously examined in this manner. The commission shall report its findings to the Senate Committee on Transportation and Utilities, the House Committee on Energy and Natural Resources, the Senate Commerce Committee, the House Economic Development Committee, the Joint Committee on Computers and Telecommunications and the Telecommunications Action Planning Committee of Kansas, Inc., no later than January 1995; and

Be it further resolved: That during the first week of the 1995 regular legislative session, the Corporation Commission shall report to the Senate Committee on Commerce and the House Committee on Energy and Natural Resources regarding the status of the docket opened by the commission to determine a plan of regulation to succeed the current scheme of regulation (TeleKansas I) of Southwestern Bell Telephone Company, docket number 187,730-U; and

Be it further resolved: That copies of this resolution be transmitted to the President of the Senate, the Speaker of the House of Representatives, the Governor and the Chairman of the State Corporation Commission.

Adopted by the House March 28, 1994.

Adopted by the Senate March 15, 1994.

CHAPTER 372

SENATE CONCURRENT RESOLUTION No. 1626

A CONCURRENT RESOLUTION creating the Council on Privatization; designating its membership, authority and responsibilities; and requiring a report to the 1995 Kansas Legislature on its findings and recommendations.

WHEREAS, The private sector should be encouraged to provide goods and services, traditionally provided by state government, when they can do so at a comparable quality and lower cost; and

~~shall also have the power to refuse to register more than one commercial feeding stuffs under the same name or brand when offered by the same manufacturer, importer, jobber, firm, association, corporation or person. Should any commercial feeding stuffs be registered in this state, and it is afterward discovered that such registration is in violation of any of the provisions of this act, the secretary of agriculture shall have the power to cancel such registration; the said~~ *The* secretary *or a duly authorized representative of the secretary* shall have the power to refuse to allow any manufacturer, importer, jobber, firm, association, corporation, or person to lower the guaranteed analysis or change the ingredients of any brand of ~~his, her or their~~ *such entity's* commercial feeding stuffs ~~during the term for which registered,~~ unless satisfactory reasons, *as determined by the secretary or a duly authorized representative of the secretary,* are presented for making such change or changes.

Sec. 7. K.S.A. 2-1003, 2-1003a, 2-1004, 2-1006, 2-1007, 2-1008, 2-1011, 2-1011a and 2-1013 are hereby repealed.

Sec. 8. This act shall take effect and be in force from and after its publication in the statute book.

Approved April 14, 1994.

CHAPTER 234

HOUSE BILL No. 3039 *

AN ACT concerning telecommunications public utilities; establishing certain requirements for telephone call identification service; relating to live operator requirements and to the extension of TeleKansas I.

Be it enacted by the Legislature of the State of Kansas:

Section 1. (a) As used in this section, "telecommunications public utility" has the meaning provided by K.S.A. 66-1,187 and amendments thereto.

(b) Each telecommunications public utility shall ensure that a person initiating a live or mechanized operator-assisted call in this state may access a live operator at the beginning of all automated operator-assisted calls through a method designed to be easily and clearly understandable and accessible to the caller. The requirements of this section shall not apply to access codes or telephone calls that customers expect to be mechanized only. Each telecommunications public utility shall submit to the state corporation commission for review the method by which the utility will provide such access to a live operator.

(c) This section applies regardless of the methods by which the telecommunications utility provides the operator service.

(d) The requirements of this section shall not apply to telephone service from a jail or correctional institution or facility.

Sec. 2. (a) The Kansas corporation commission, for a period extending through March 1, 1997, shall continue to regulate all telecommunications public utilities with more than 500,000 access lines in accordance with the terms and conditions set forth in TeleKansas I. The continuation shall include: (1) Capital expenditures, above normal construction investment, of not less than $64,000,000 by such telecommunications public utilities in a manner and amount to be determined by agreement between such telecommunications public utilities and the corporation commission and (2) the continuation of current levels of employment in this state through March 1, 1997 based on employment in this state as of April 1, 1994. The commission may require such additional investments and commitments so that the overall terms and conditions are no less favorable than those which have been publicly offered by such utility in states contiguous to Kansas during the six months prior to the effective date of this act. Such additional capital expenditures shall include but not be limited to the completion of a fiber optic network for public high schools in areas served by Southwestern Bell in Kansas. The corporation commission shall monitor each approved project and the expenditures therefore. The commission shall not conduct any earnings audit for the purpose of requiring rate reductions prior to January 1, 1996.

(b) Nothing in this section shall prevent the corporation commission from further relaxing regulation of telecommunications services, from authorizing competition in existing services or entry of new competitive services, or from complying with preemptive federal orders prior to March 1, 1997. With the exception of subsection (a), this section does not otherwise alter the commission's statutory authority.

(c) For purposes of this section, "TeleKansas I" means the scheme of regulation set forth in the corporation commission's February 2, 1990 order in the case styled *In the Matter of Southwestern Bell Telephone Company's Proposal for Network Modernization, Rate Stability and Pricing Regulation, a/k/a "TeleKansas"*, docket number 166,856-U.

Sec. 3. This act shall take effect and be in force from and after its publication in the statute book.

Approved April 14, 1994.

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APPENDIX III

SUBCOMMITTEE MEMBERS

Subcommittee I -- Developed Request for Proposal, Evaluated bids, and selected finalists for consultant

Senator Downey
Representative Gatlin
Representative Haulmark
Richard Veach
Neil Woerman
Ray Williams

Also included staffing assistance from the Division of Information Systems and Communications, the Kansas Corporation Commission, and the Kansas Legislative Research Department.

Subcommittee II -- Formulated Recommendations for Proceeding with Proposal in Light of the Dissolution of T.E.L.A. Group

Melanie Fannin
Representative Fred Gatlin
Don Low
Mike Reecht
Andy Scharf
Richard Veach
Neil Woerman

Subcommittee III -- Assisted Consultants in Providing Contacts for the User Needs

Representative George Dean
Melanie Fannin
Don Heiman
Kendall Mikesell
Mike Reecht
Bob Weary
Ray Williams
Neil Woerman

Subcommittee IV -- Identified Applications of Importance, A Method of Promoting Their Development, and a Method of Coordinating Telecommunications Proposals for Grant Application Submittals

Representative George Dean
Dave Brevitz
Neil Woerman
Don Heiman
Fred Boesch
Melissa Hungerford
Duane Johnson
Denise Moore
Barb Paschke

APPENDIX IV

TELECOMMUNICATIONS STRATEGIC PLANNING COMMITTEE CHRONOLOGY OF EVENTS

March 1994 -- Senate and House adopt S.C.R. 1627, which established the Telecommunications Strategic Planning Committee

April 22, 1994 -- The Kansas Corporation Commission issues an order to establish a generic docket to investigate competition for regulated telecommunications services.

May 12, 1994 -- The Kansas Corporation Commission applies for a NTIA planning grant, as directed by S.C.R. 1627.

July 15, 1994 -- First Meeting of the Telecommunications Strategic Planning Committee

August 19, 1994 -- The Telecommunications Strategic Planning Committee approves Request for Proposal for technical assistance in developing a statewide strategic plan.

September 28, 1994 -- Deadline for proposals from consultants.

October 14, 1994 -- The Telecommunications Strategic Planning Committee selects T.E.L.A. Group and Doherty and Company as the consultant to be recommended to the Legislative Coordinating Council.

October 15, 1994 -- The Kansas Corporation Commission is awarded an NTIA planning grant to fund part of the project.

October 19, 1994 -- The Legislative Coordinating Council authorizes entering into a contract with the T.E.L.A. Group and Doherty and Company.

January 1995 -- The Kansas Corporation Commission disseminates its *Telecommunications Infrastructure Study 1994* in response to requests from the 1994 Legislature and in support of the Telecommunications Strategic Planning Committee's efforts.

April 1, 1995 -- The T.E.L.A./DCI Group issues its final version of the report *Evolving Services and Technologies*.

April 14, 1995 -- The Kansas Corporation Commission issues its order on the extension of TeleKansas until March 1, 1997.

April 19, 1995 -- T.E.L.A. Group/DCI issues its report on *Telecommunications Policy Issues: Competition, Interconnection, Pricing, Universal Service, and Infrastructure Deployment.*

April 28, 1995 -- The Legislative Coordinating Council approves a new contract with the reconfigured T.E.L.A./DCI Group, now known as Weber Temin & Company/DCI.

May 5, 1995 -- The Kansas Corporation Commission issues an order on the competition docket opened in April 1994.

May 9, 1995 -- Weber Temin & Company/DCI issue their report on the *Theory and Practice of PriceCaps*.

May 10, 1995 -- Weber Temin & Company/DCI issue their report on *A Dozen Proposals* (their proposed policy framework for telecommunications in Kansas).

June 5, 1995 -- The Kansas Corporation Commission issues an order on reconsideration which denies in part and grants in part the order issued on May 5.

June 14, 1995 -- Weber Temin & Company/DCI issue their report on *A Dozen Proposals: Expanded and Compared with the KCC Competition Order*.

June 15-16, 1995 -- Tour of rural Kansas telecommunications applications with consultants.

July 12, 1995 -- Presentations by end users of telecommunications services to the Telecommunications Strategic Planning Committee.

August 10, 1995 -- Weber Temin & Company/DCI issue their report on the *Potential Use of Government Networks*.

August 16, 1995 -- Weber Temin & Company/DCI issue a draft report on the *User Needs Assessment*.

August 16, 1995 -- Weber Temin & Company/DCI issue a report on *Economic Aspects of Telecommunications Development*.

August 17, 1995 -- Revision of *A Proposed Policy Framework for Telecommunications in Kansas (Formerly Called "A Dozen Proposals from Weber Temin & Company")*

August 31, 1995 -- Weber Temin Revision of A Proposed Policy Framework for Telecommunications in Kansas in statutory form.

September 21, 1995 -- Committee recommends modification by Telecommunication Strategic Planning Committee to the Weber Temin report of August 31.

September 21, 1995 -- Subcommittee of Telecommunications Strategic Planning Committee meets to begin discussion of a vision statement for telecommunications in Kansas.

September 29, 1995 -- Subcommittee of Telecommunications Strategic Planning Committee meets to continue discussion of vision statement for telecommunication in Kansas.

October 6, 1995 -- Subcommittee completes work on a draft vision statement.

October 16, 1995 -- Subcommittee meets to receive input from telecommunications providers on capacity of companies to have facilities and services to support applications in vision statement.

October 23, 1995 -- Subcommittee meets to discuss: (1) a process for informing prospective end users about the use and availability of new technologies associated with applications identified in the vision statement; (2) methods of coordinating various telecommunications proposals (NTIA) or initiatives; and (3) establishment of a telecommunications end user support fund.

October 25, 1995 -- Subcommittee meets to review a draft report to the full Committee and recommend changes.

October 25, 1995 -- Weber Temin & Company/DCI final report on Telecommunications User Needs Assessment (three volumes) is received.

October 27, 1995 -- Committee approves Subcommittee report, with modifications, and vision statement. Committee also recommends several changes to *Proposed Policy Framework for Telecommunications in Kansas*.

November 30, 1995 -- The Committee participates in an NCSL interactive satellite teleconference on telecommunications deregulation. The Committee also recommends modifications to the *Proposed Policy Framework* and recommends that it not be introduced as legislation. Finally, the Committee determines that the consultants have completed their work and recommends that they be paid in full.

December 18, 1995 -- The Committee will meet to review and make modifications to the final report to be submitted to the 1996 Legislature and Governor.

APPENDIX V

Glossary of Communications Terms

Access – The capability to enter the local, nationwide, and international networks which, in turn, gives the user the ability to reach or communicate with someone else. From a customer's perspective, access is the ability to communicate with the outside world. From an interexchange carrier's perspective, access is the ability to reach all customers in a geographic area.

Access Charge – A charge imposed on either end-users or interexchange carriers to compensate local telephone companies for the connections between interexchange carriers.

Access Line – The facilities between a serving central office and the customers that are required to provide access to the local and long distance networks.

Analog – In communications, this describes a continuous signal expressed as a continuous wave-form.

Application – How a product or service is used. Applications meet customers' needs.

Backbone – Network arrangement designed to interconnect lower-speed channels, dispersed users, or major components of local area networks.

Bandwidth – Range of frequencies that pass through a transmission medium without distortion. Although the term refers to analog transmission, bandwidth is now taken to mean the capacity of a medium or transmission technology.

Basic Service – The minimum set of capabilities deemed necessary for using the public telecommunications networks.

Broadband – A communications channel that is capable of carrying a large portion of the electromagnetic spectrum. A broadband channel can accommodate all media: audio, digital, and television.

Bypass – This describes the practice of interexchange carriers or others to use special facilities or other means to avoid paying a local exchange carrier's access charges based on minutes of use.

Cable Service – One-way transmission of video programs to subscribers. Cable service increasingly includes the capacity of some subscriber interaction.

Cell – Packet switching information grouped in units of uniform size; or a small group acting as a unit in a larger organization (e.g., one of the separate geographical areas covered by a radio transceiver antenna in a multi-antenna cellular phone system).

Cellular Service – A wireless radio service in which a geographic area is subdivided into small "cells," each served by a separate transmitter/receiver. Calls are handed off from one receiver/transmitter to the next as the user moves between cells.

Central Office – A telephone company location which houses switching equipment used to provide telephone service to customers in the surrounding area. It provides a point of connection for customer lines and trunks.

Centrex – Service provided by a local telephone company through its central office which enables direct inward and outward dialing without operator assistance; as such it is the central office version of PBX service.

Circuit – A switched or dedicated communications path with a specified bandwidth (transmission speed/ capacity).

Co-Location – The location of one company's communications facilities on the premises of a competitor company's facilities. This has initially taken the form of alternative service providers locating certain equipment in the central offices of the local telephone companies.

Competitive Access Providers (CAPs) – CAPs are companies that compete with established local telephone companies by providing access to long distance companies, as well as other local communications services. Also known as alternative local transporters or alternative access providers.

Connectivity – Ready availability and usability of telecommunications capabilities.

Cross-Subsidization – The subsidization of one product or service with revenues of another.

Customer Premises Equipment (CPE) – CPE is user equipment that is connected to a telecommunications network.

Data – Information usually represented in a digital network as a "1" or "0."

Deaveraging – Under the practice of geographic rate deaveraging, the costs of carrying calls to high-cost, low-volume areas are averaged with the costs of carrying calls to high-volume areas; thus carriers charge uniform rates for carrying calls to all locations.

Dedicated Line – A private line leased from a telecommunications carrier.

Dialing Parity (for 1+ Dialing) – Enables customers of alternative service providers to access their long distance carrier of choice by dialing "1" plus the area code and number.

Digital – A device or method that uses discrete variations in voltage, frequency, amplitude, location, etc. to encode, process, or carry binary (zero or one) signals for sound, video, computer data, or other information. For example, a digital clock displays the time as discrete numeric values rather than angular displacement of analog hands. Digital communications technology generally permits higher speeds of transmission with a lower error rate than can be achieved with analog technology. When analog signals are received and amplified at each repeater station, any noise is also amplified. A digital signal, however, is detected and regenerated (not amplified).

Distance Learning – Instruction in which the pupil and instructor are in different locations and interact through the use of communications technology.

Docket – A formal Federal Communications Commission or state regulatory proceeding that may also be referred to as a case or cause.

Electromagnetic Spectrum – The frequency (or wave length) presenting a given electromagnetic radiation. A single spectrum could include a single frequency or a wide range of frequencies.

End Office – A central office that supports customer access circuits.

Exchange Area/Exchange Service – The geographic area within which all calls are considered local calls. Exchange services are those that are provided within these local calling areas.

Facilities-Based Carriers – Companies that provide telecommunications services to the public over facilities that they own.

Federal Communications Commission (FCC) – The FCC is a federal agency responsible for regulating interstate telecommunications.

Feeder Cable – Cable that takes signals from the trunk line to the subscriber area and to which subscriber taps are attached.

Fiber Optics – Thin glass strands through which light beams are transmitted. Fiber-optic lines provide greater transmission capacity with less interference than metallic cables.

Full-Motion Video – In videoconferencing, full motion refers to a "smooth" picture provided by transmission; generally, it requires a minimum of 384 kbps (kilobits per second).

Headend – The electronic equipment located at the start of a cable television system, usually including antennas, earth stations, preamplifiers, frequency converters, demodulators, modulators, and related equipment.

Host – In a computer network, the host is the primary system in a multicomputer operation.

Incremental Cost – The additional cost to a company resulting from a given change in the volume of service. This excludes all costs attributable to the production of other services and all unattributable costs which are incurred in common with other services supplied by the company.

Independent Local Exchange Carrier (ILEC) – An ILEC is a local exchange carrier that was never part of the former Bell system.

Interconnection – The connection of telephone equipment to the network; also the connection of one telecommunications carrier with another.

InterLATA – Services, revenues, functions etc., that relate to telecommunications originating in one local access and transport area (LATA) and terminating in another LATA or outside of a LATA.

IntraLATA – - Services, revenues, functions etc., that relate to telecommunications originating and terminating within a single local access and transport area (LATA).

Internet – A worldwide system for linking computer networks. Initiated by the Defense Advanced Research Projects Agency in the 1970s.

ISDN (Integrated Services Digital Network) – ISDN is a switched network design that serves as a flexible communications pipeline, simultaneously transporting voice, data, and video.

IXC (Interexchange Carrier) – An IXC is a long distance company, such as AT&T, MCI, and Sprint.

LAN (Local Area Network) – A LAN is a network of multiple interconnected data terminals or devices within a local area to facilitate data transfer.

LEC (Local Exchange Carriers) – A LEC is a local telephone company, either a Bell company or independent company (sometimes referred to as ILEC), which provides local calling services.

Lifeline – Generally, a program that assures access to telephone service by allowing a discount on bills to eligible low-income subscribers.

Local Access and Transport Area (LATA) – Local telephone service areas created by the Modification of Final Judgement. Regional Bell Operating Companies (RBOCs) are permitted to carry calls within one or more LATAs, but are not allowed to provide services between LATAs. These rules do not apply at present to other carriers, such as interexchange carriers, independent local telephone companies, and competitive access providers.

Loop – A pair of wires, or its equivalent, between a customer's location and the telephone company central office which provides service.

MFJ (Modification of Final Judgement) – The MFJ is the 1982 legal document which defines the terms of the AT&T divestiture. AT&T agreed to the divestiture of its 22 wholly-owned operating companies (later reorganized into seven regional holding companies) and also agreed to divest sufficient facilities, personnel, and rights to technical information to permit the operating companies to perform local exchange telecommunications, exchange access, and printed yellow pages directory functions. Pursuant to divestiture, AT&T retained Western Electric (its manufacturing organization), Bell Labs, Long Lines (its long distance communications organization), as well as its embedded customer premises equipment. Recently, AT&T split its operations into three companies to handle: (1) communications; (2) manufacturing; and (3) computers and other functions.

Multimedia – The combination of several forms of communication within the same technology, *e.g.*, integrating data, audio, and video communication through computer terminals.

Number Portability (provider) – The capability that permits a customer to retain the same telephone number regardless of the provider of the local telephone service.

PBX (Private Branch Exchange) – A PBX is a private telephone switching system, usually located on the customer's premises. Connected to a group of lines from one or more telephone company central offices to provide services to many users internally.

PCS (Personal Communications Services) – PCS is the technology that supports personal telephone numbers, compact portable telephone numbers, and wireless telephone access to the switched network.

POP (Point of Presence) – A physical location within a LATA at which a long distance carrier establishes itself for the purpose of obtaining access to customers via the local telephone company.

Port – The point at which a local loop enters the central office switch.

POTS – Acronym for "plain old telephone service."

Private Network – Privately-owned telephone facilities, such as private branch exchanges (PBXs) and dedicated (private) lines. Such networks generally serve intra-organization communications needs.

Protocol – Very specific rules or standards for information transmission. A formal set of conventions governing the format and control of inputs and outputs between two communicating entities.

Public Switched Network – The telephone network.

Rate Base – Under rate-of-return regulation, the rate base for a regulated utility is determined by the regulatory commission and is the total amount of investment on which an allowed rate of return is calculated.

RBOCs (Regional Bell Operating Companies) – RBOCs are the seven "Baby Bell" companies created pursuant to the 1982 Modified Final Judgement that specified the terms of the AT&T Divestiture. The seven RBOCs include: NYNEX, Bell Atlantic, Bell South, Southwestern Bell, U.S. West, Pacific Telesis, and Ameritech. "RBOC" is sometimes used informally to refer to the Regional Holding Companies defined in the 1982 MFJ.

Reseller – A local or long-distance service provider that purchases bulk capacity from another carrier and sells it in smaller units to customers.

Residual Pricing – The practice of establishing rates for nonbasic services so as to generate contribution, and then pricing basic service so as to satisfy the remaining revenue required by the company to cover operating costs, taxes, and a return on investment. The intent of this practice is to keep rates for basic service lower than would otherwise be required and to promote universal service.

Router – A device used to connect Local Area Networks (LANs).

Special Service – This service is dedicated facilities, sometimes called private line, special, or dedicated.

Subsidies – This describes the practice of charging some customers based upon the value of service and others less than cost, with funds flowing from one to the other.

Switched Service – This term is used to describe long distance service provided by the interexchange carriers or the local exchange carriers.

Switching Equipment – Equipment located in a telephone company's central office which routes a call from the calling customer to the customer receiving the call.

T1/DS-1 – (Facility) The equivalent of 24 multiplexed voice grade channels; 1.544 million bits per second.

Trunk – Circuit between switching equipment (telephone company or other provider switching centers), as distinguished from a loop which extends between central office switching equipment and the customer's telecommunications equipment.

Telecommuting – The use of telecommunications as a substitute for travel.

Telemedicine – The application of telecommunications and information resources to the health field in support of patient care and patient-related activities.

Unbundling – The disaggregation of pricing for various components and functions of the telephone network.

Universal Service – A policy guaranteeing that all households have access to basic service at reasonable rates.

Videoconference – Allows groups in different locations to communicate via video and audio transmission.

Video Dial Tone – The capability to deliver video services on demand – the video equivalent of voice dial tone.

Voice Grade – For narrowband, a low-capacity communications circuit or path. It usually implies a speed of 56 kbps or less.

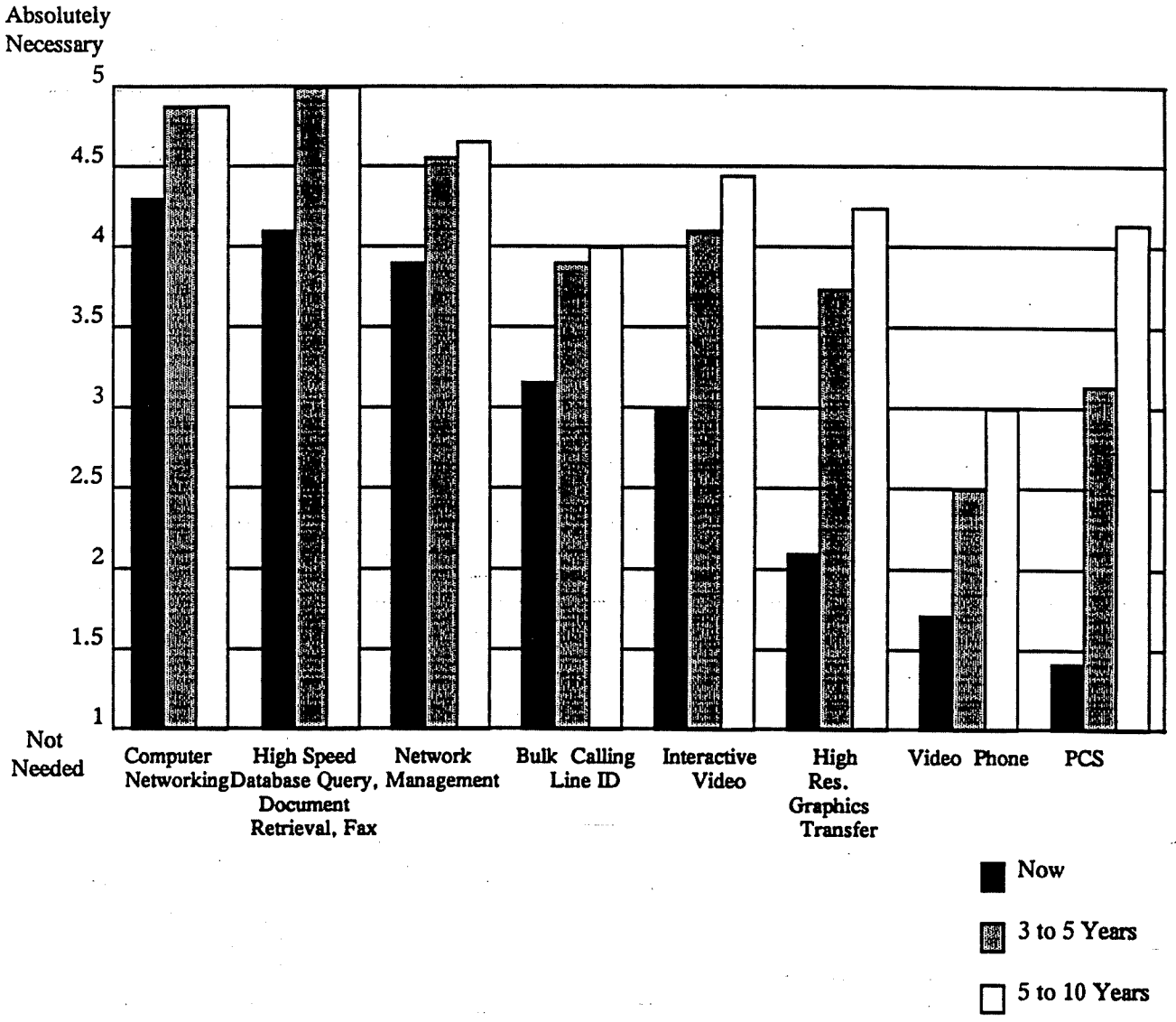
Wireless Communications – Systems that use radio transmitters and receivers instead of wire lines.

APPENDIX VI

Industrial/Commercial Findings

Industry-Specific Needs

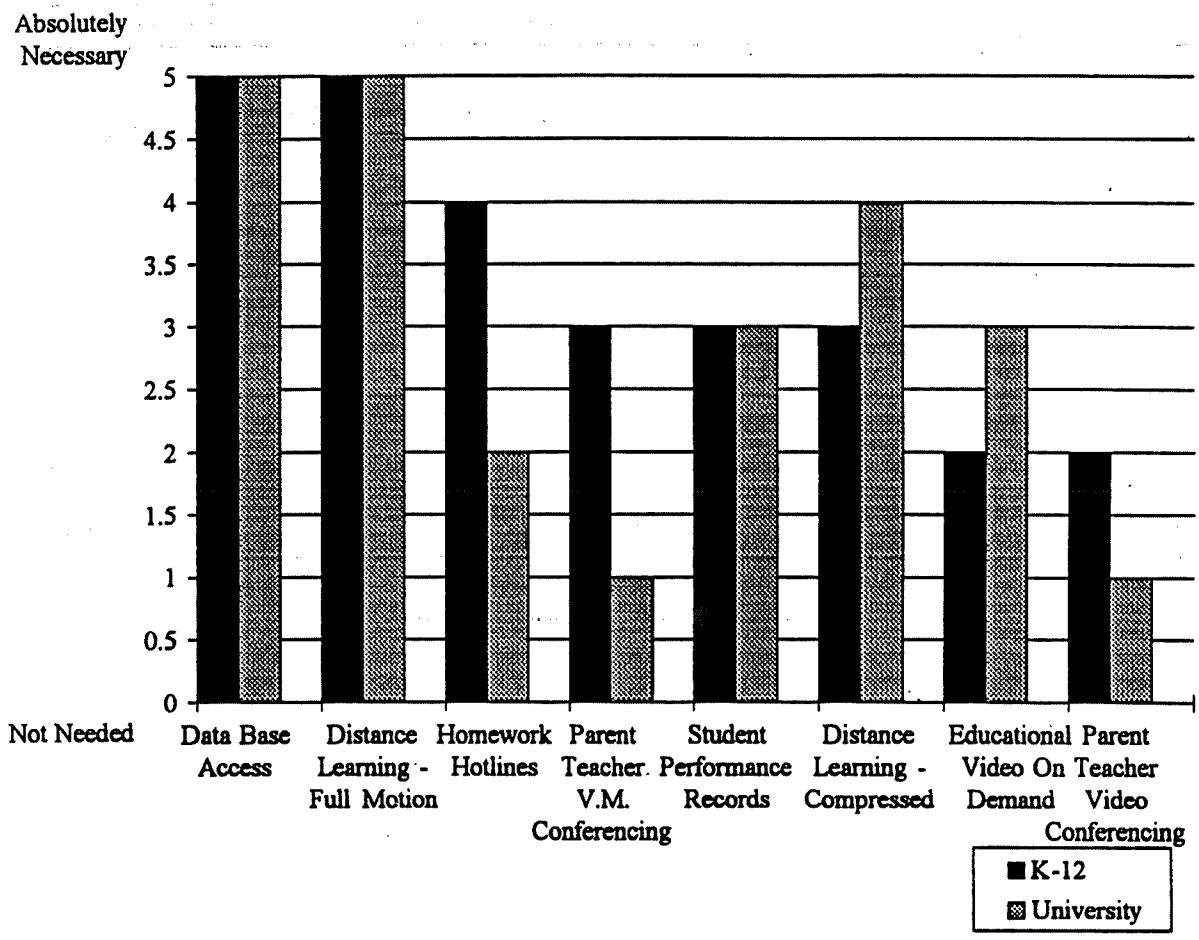
- Computer networking scored highest on need for the near-term and High speed database query, document retrieval, and fax scored highest for the longer terms, while video phone scored below even the neutral level for all time periods.



Education Findings

Industry-Specific Needs

- Data Base Access and Distance Learning scored as absolutely necessary for both K-12 and University segments.
- Five of the eight applications listed have widely differing levels of importance between K-12 and University segments.

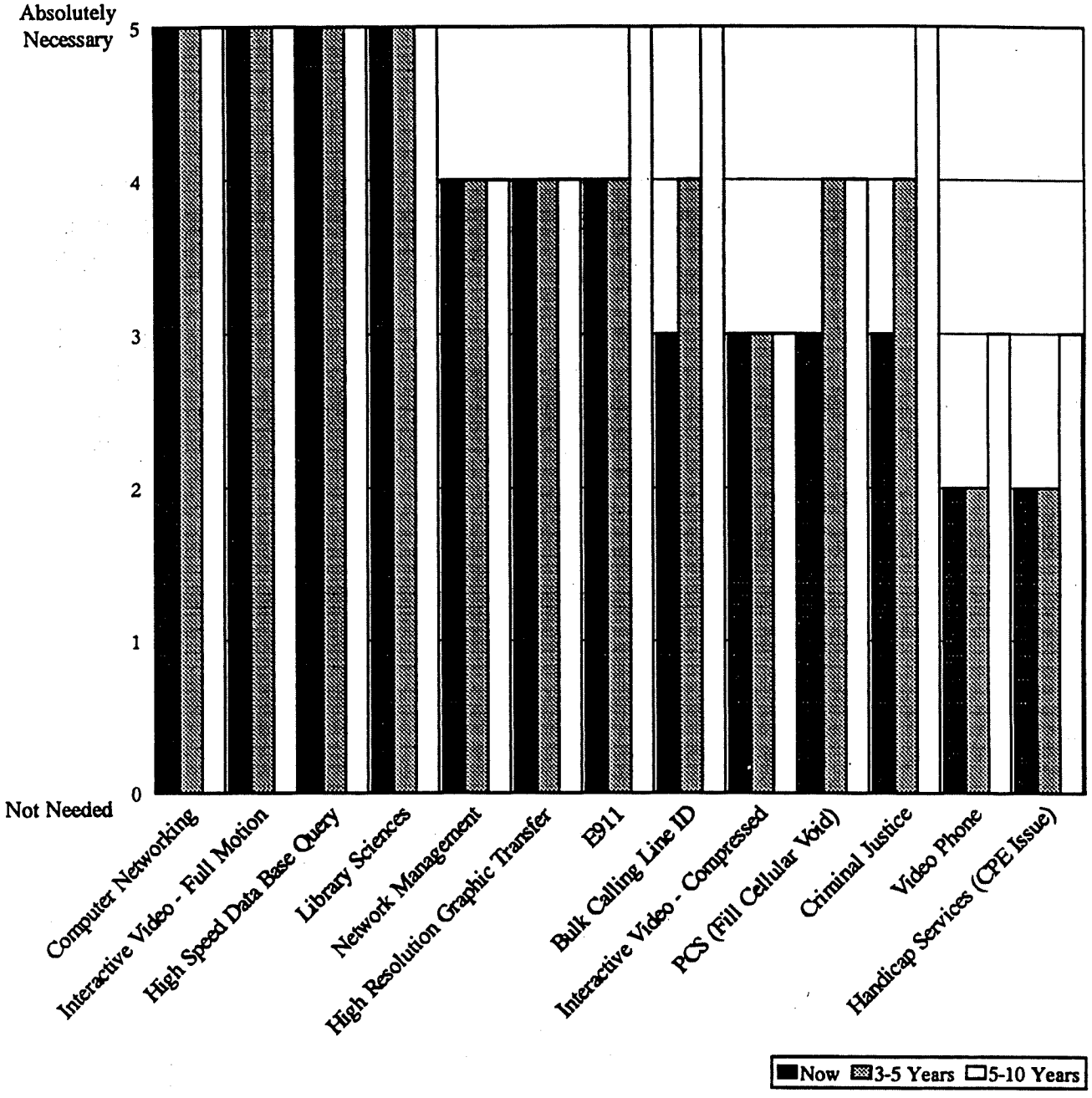


Government Findings

Industry-Specific Needs

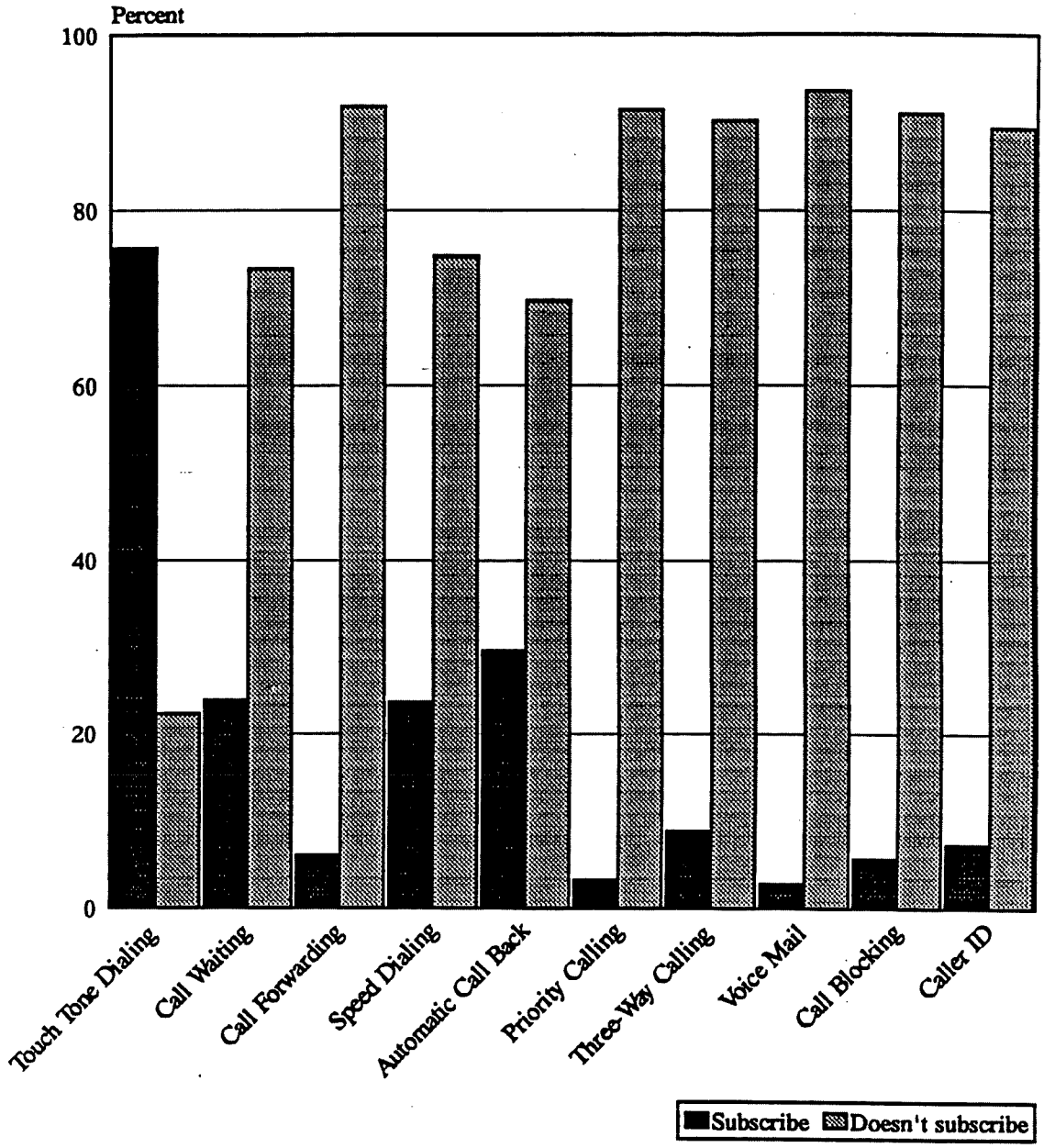
- Computer networking, full motion interactive video, and high speed data base query applications were ranked absolutely necessary now and in the future. Network management is mostly vendor provided.

- E911 and Library Science services scored highest for the present and future. Handicap services were viewed as CPE rather than network issues.



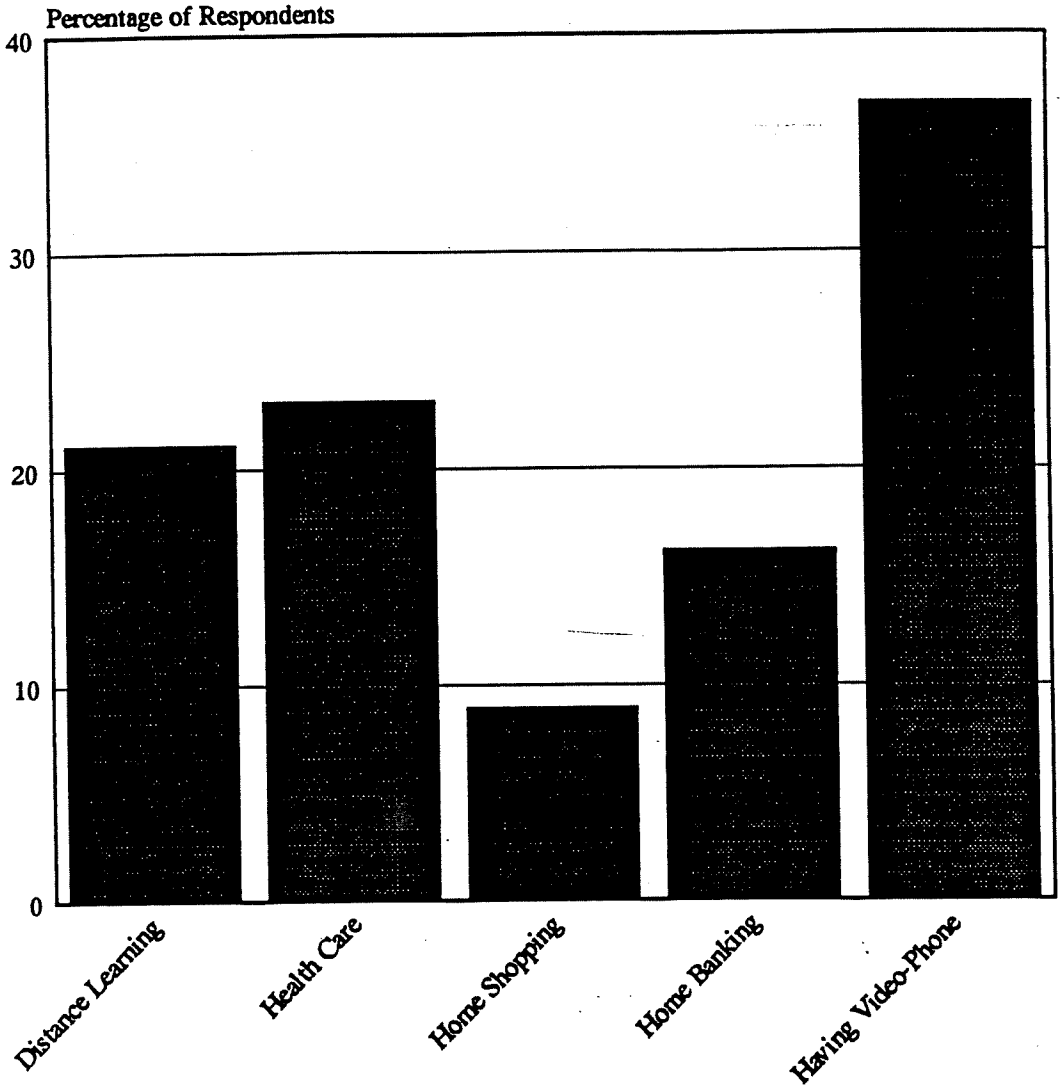
Residential

Subscribers to Services Offered by Local Telephone Companies



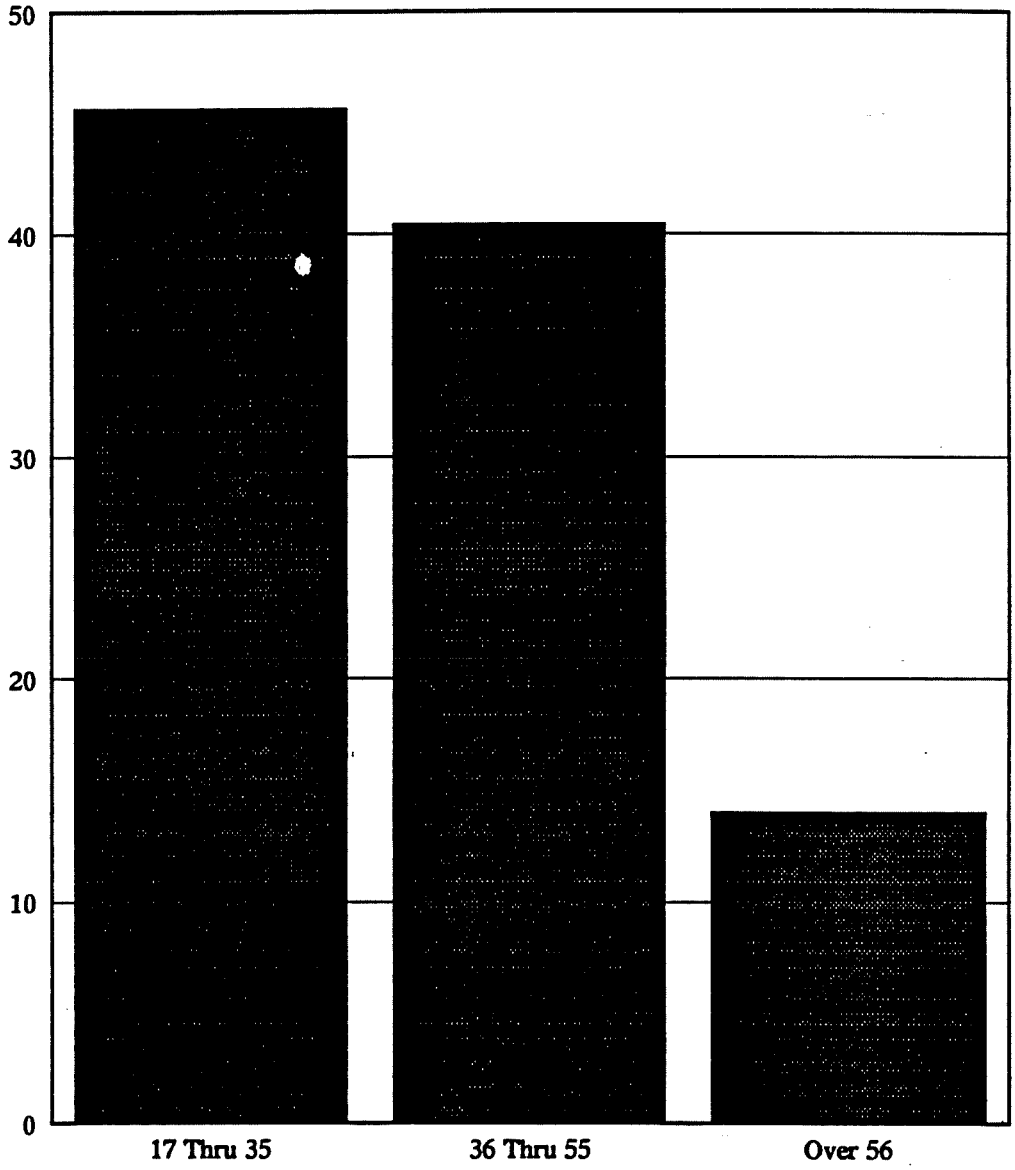
Residential

Interest in Future Video-Phone Services



Residential

Age of Those Interested in Video Health Care

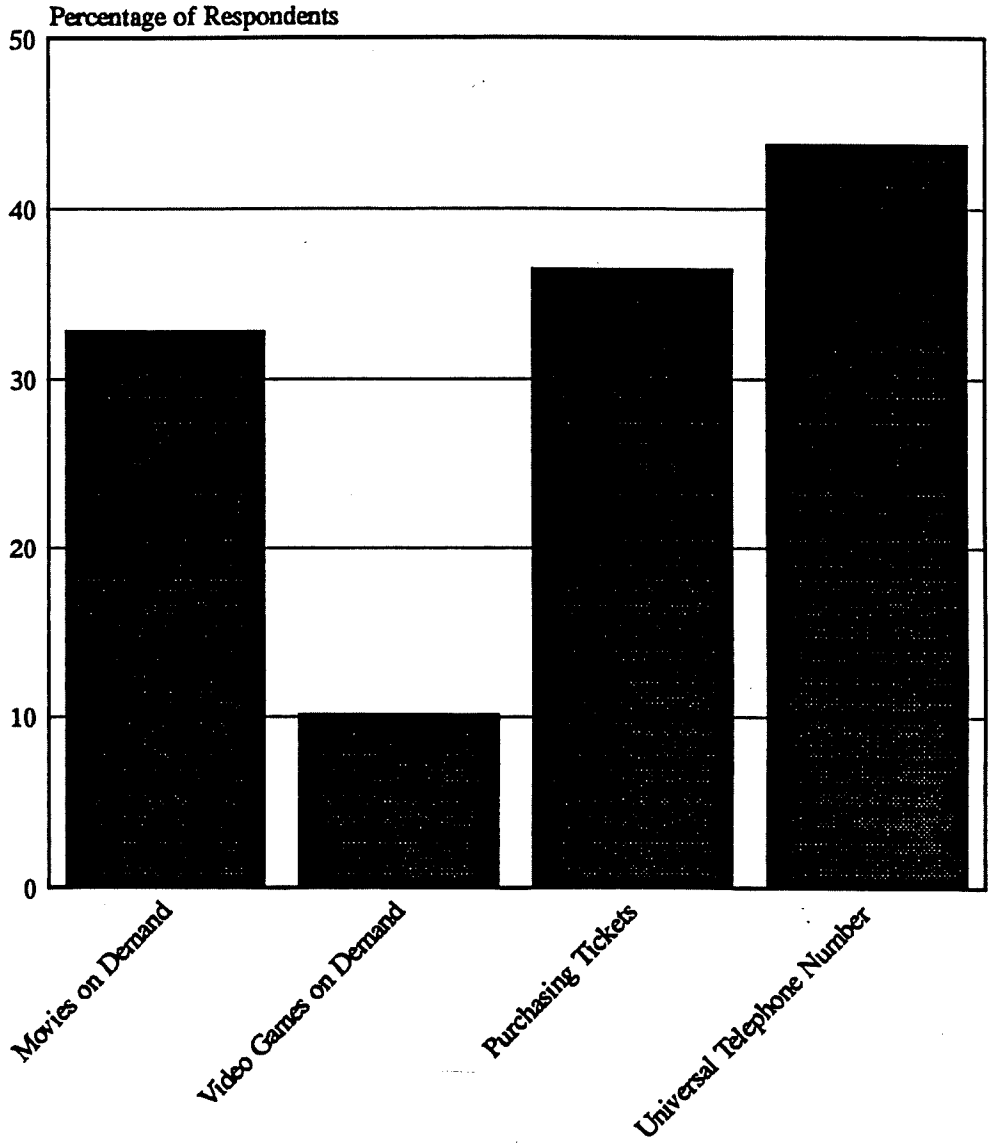


DOHERTY & COMPANY, INC.

1-88

Residential

Interest in Other Future Services



COMPARISON OF URBAN/RURAL SURVEY RESULTS

CURRENT TELECOMMUNICATIONS SERVICE USAGE

	Urban Firms		Rural Firms	
Service	Number	Percent	Number	Percent
Touch tone	78	85.7	182	87.1
***Speed dial**	**40**	**44.0**	**73**	**35.1**
Conf.call	33	36.7	63	30.1
800 number	29	32.2	65	31.3
Repeat dial	26	28.6	50	24.0
***Wire maint.**	**22**	**25.0**	**34**	**16.9**
***Call forward**	**22**	**24.3**	**32**	**15.3**
Call waiting	14	15.6	29	13.9
***Voice mail**	**14**	**15.4**	**16**	**7.7**
WATS line	13	14.6	40	19.6
Sec.monitor	9	10.0	5	2.4
Call block	7	7.8	9	4.3
Caller ID	7	7.7	8	3.8
Priority call	3	3.3	5	2.4

* Significantly larger proportion of urban service subscribers.

INTERNAL TELECOMMUNICATIONS SYSTEMS

	Urban Firms		Rural Firms	
System	Number	Percent	Number	Percent
***Internal network**	**25**	**27.2%**	**32**	**15.8%**
***Automated systems**	**17**	**18.7**	**13**	**6.3**
Other systems	6	6.5	17	8.2
PBX	5	5.6	12	5.8
Centrex	1	1.1	2	1.0

*significantly larger proportion of urban use.

INTEREST IN FUTURE SERVICES

	Urban Firms		Rural Firms	
Service	Number	Percent	Number	Percent
Digital Data	36	42.4	93	46.3
Electronic Data[1]	**29**	**33.3**	**80**	**39.4**
Video banking	26	29.9	67	32.5
Distance learning	22	25.6	51	25.0
Video purchasing	21	24.4	63	31.0
Video conference[2]	**20**	**22.7**	**31**	**15.1**
Video travel plan	16	18.2	29	14.3
Video medicine	12	14.1	29	14.2

[1] Significantly greater interest by rural firms.
[2] Significantly greater interest by urban firms.

COMPARISON OF SURVEY RESULTS BY FIRM SIZE

CURRENT TELECOMMUNICATIONS SERVICES USAGE

	1-5 Employees		6-10 Employees		> 10 Employees	
Service	Number	Percent	Number	Percent	Number	Percent
Touch tone	129	87.8%	89	87.3%	35	83.3%
***Speed dial**	**48**	**32.7**	**42**	**41.6**	**22**	**52.4**
***Conf.call**	**35**	**23.8**	**37**	**36.3**	**23**	**54.8**
***800 number**	**32**	**21.8**	**39**	**38.2**	**22**	**52.4**
***Repeat dial**	**28**	**19.2**	**32**	**31.4**	**15**	**35.7**
Wire maint.	21	14.4	24	25.0	10	25.0
Call forward	28	19.0	18	17.6	6	14.3
Call waiting	25	17.0	12	11.9	5	11.9
***Voice mail**	**13**	**8.8**	**8**	**7.8**	**8**	**19.0**
***WATS line**	**13**	**8.9**	**25**	**25.3**	**15**	**35.7**
***Sec.monitor**	**2**	**1.4**	**4**	**4.0**	**8**	**19.0**
Call block	7	4.8	5	5.0	4	9.5
***Caller ID**	**2**	**1.4**	**5**	**4.9**	**8**	**19.0**
Priority call	4	2.7	2	2.0	2	4.8

*significantly larger proportion of firms with 6 or more employees subscribe to services.

INTERNAL TELECOMMUNICATIONS SYSTEMS

	1-5 Employees		6-10 Employees		> 10 Employees	
System	Number	Percent	Number	Percent	Number	Percent
***Internal network**	**17**	**11.7%**	**22**	**21.8%**	**17**	**43.6%**
Other systems	14	9.5	5	5.0	4	17.4
***Automated systems**	**7**	**4.8**	**11**	**10.9**	**11**	**26.8**
***PBX**	**2**	**1.4**	**7**	**7.0**	**8**	**19.5**
Centrex	1	0.7	1	1.0	1	2.4

*significantly larger proportion of firms with 6 or more employees.

INTEREST IN FUTURE SERVICES

	1-5 Employees		6-10 Employees		> 10 Employees	
Service	Number	Percent	Number	Percent	Number	Percent
Digital Data	56	39.7	45	45.5	28	66.7
Electronic Data	50	34.5	33	33.3	26	61.9
Video banking	37	25.2	37	37.4	18	42.9
Distance learning	32	21.8	27	27.6	14	34.1
Video purchasing	36	24.7	30	30.3	18	45.0
Video conference	17	11.6	21	21.0	13	31.0
Video travel plan	19	13.0	18	18.0	8	19.5
Video medicine	19	13.0	12	12.4	10	23.8

work-at-home arrangements with employees (only 2-10% have such arrangements).

Telephone Usage Of The Responding Organization Relative To Its Own And Member Operations

- Chamber respondents report 2-30 telephone lines in service; midpoint is seven lines. In the next five to ten years, about 20% more lines may be added. Four organizations use a PBX, one uses multiple lines.

- Respondents were asked to assess relative awareness and use of what are called in the industry "enhanced services" of telephone companies The table below summarizes results.

TABLE NO. 1
Chamber Of Commerce And Economic Development
Respondents' Views Of Telephone Company Enhanced Services

Service "Offered By Your Telephone Company:" Constituents . . .	Subscribe To Service	Aware, Don't Subscribe	Not Familiar With Service
Touch-tone service	7	1	
Call waiting	5	3	
Call forwarding	5	3	
Speed dialing	4	1	3
Automatic call back/repeat dialing	1	2	5
Priority calling		2	6
3-way/conference calling	5	2	1
Voice mail/telephone answering	3	1	4
Selective call blocking service	1	2	5
Caller ID	1	4	3

- Telecommunications was unanimously reported to be of "extreme importance" to the Chamber of Commerce organization.

- Monthly telephone bills for the organizations ranged from $120-$1600.

- Three chambers had 800 lines, five did not.

- Three chambers used data services (Internet, Prodigy, American Economic Development) while five did not use such services.

Use Of Other Related Equipment And Services

- All eight organizations used fax machines, usually one machine.

APPENDIX VII

Telecommunications Task Forces/Working Groups

I. Information Technology Advisory Board Telecommunications Committee

The Information Technology Advisory Board (ITAB) Telecommunications Committee consists of senior Information Technology managers from many state agencies and Regents institutions. Chaired by the Chief Information Architect, the Board, through a committee structure, develops and coordinates technical policies and standards to meet the needs of the Kansas Information Resources Council, the Chief Information Architect, and the information technology community in state government. To address these functions in the area of telecommunications, ITAB has representation from the Regents institutions, state agencies, the Board of Education, and others.

II. Kansas Board of Regents – Telecommunications and Information Technology (TELIT) Committee

The TELIT Committee is chaired by a Regent and is responsible for providing coordination and leadership in telecommunications for the Regents system. The Committee developed the proposal "Kansas – a Learning Community" and presented it to the Telecommunications Strategic Planning Committee. The proposal includes a vision, an infrastructure plan to support that vision, cost estimates, and examples of applications and benefits. In addition to the TELIT Committee, the Regents system has other groups, such as the Computer Advisory Committee and the Council of Media Directors, that work on telecommunications-related issues; however, these groups are subcouncils of the Council of Chief Academic Officers and do not have the same authority as the TELIT Committee.

III. Kansas Hospital Association – Technical Advisory Group

To promote the conclusions reached in the grant project "Telemedicine: Assessing the Kansas Environment," the Kansas Hospital Association established a technical advisory group, which is chaired by the Chief Executive Officer of Sumner Regional Medical Center, Wellington. This group continues to monitor, participate in, and promote policies that support medical and administrative uses of telecommunications technology. The Telemedicine Technical Advisory Group recommends policy and strategy to the Board of the Kansas Hospital Administration.

IV. Kansas Library Network Board

The Kansas Library Network Board is a Division of the State Library. The Board promotes services to provide people with the information they want, when and where they need it. To fulfill this mission, the Board develops and implements long-range plans and offers grants and support services to all types of libraries. Among the Board's initiatives are the Interlibrary Loan Development Program, which provides collection development grants to libraries across the state, and Blue Skyways, the Kansas library community's World Wide Web service, which makes it easy for Kansans to access global information resources. Seven Board members are appointed by the Governor to represent the following: academic libraries; community college libraries; public libraries; Regents university libraries; regional library

systems; school libraries; and special libraries. The Board also includes representatives from the Board of Regents, the Department of Education, and the State Library.

V. Kansas Research and Education Network (KANREN) Executive Committee

The KANREN Executive Committee is composed of 11 members who are elected at annual meetings of the KANREN consortium. Membership is selected from five categories:

a. two members from Regents universities;

b. two members from private colleges and universities;

c. two members from community colleges;

d. two members from K-12 school districts and education service centers; and

e. three members from other nonprofit organizations.

The Executive Committee is directly responsible for the KANREN budget (currently approximately $380,000 annually) and staff (currently 2.0 FTE positions). The Committee meets approximately four times a year as called by the Chair. Members of the Committee represent the following institutions: University of Kansas; Kansas State University; Washburn University; Benedictine College; Johnson County Community College; Colby Community College; Olathe schools; North East Kansas Education Service Center; Kansas Department of Education; Kansas State Library; and the Information Network of Kansas (INK). An ad-hoc member represents the Bureau of Telecommunications, Division of Information Systems and Communications.

VI. Kansas State Board of Education -- South Central Regional Technology Consortia

The Kansas State Board of Education serves as the coordinating agency in Kansas for the South Central Regional Technology Consortia. This Consortia was established to help states, local educational agencies, teachers, schools, library and media personnel, administrators, and other educational entities successfully integrate advanced technologies, including telecommunications, into kindergarten through 12th grade classrooms, library media centers, and other educational settings, including adult literacy centers.

VII. Kansas Technology Enterprise Corporation (KTEC) Telecommunications Planning Committee

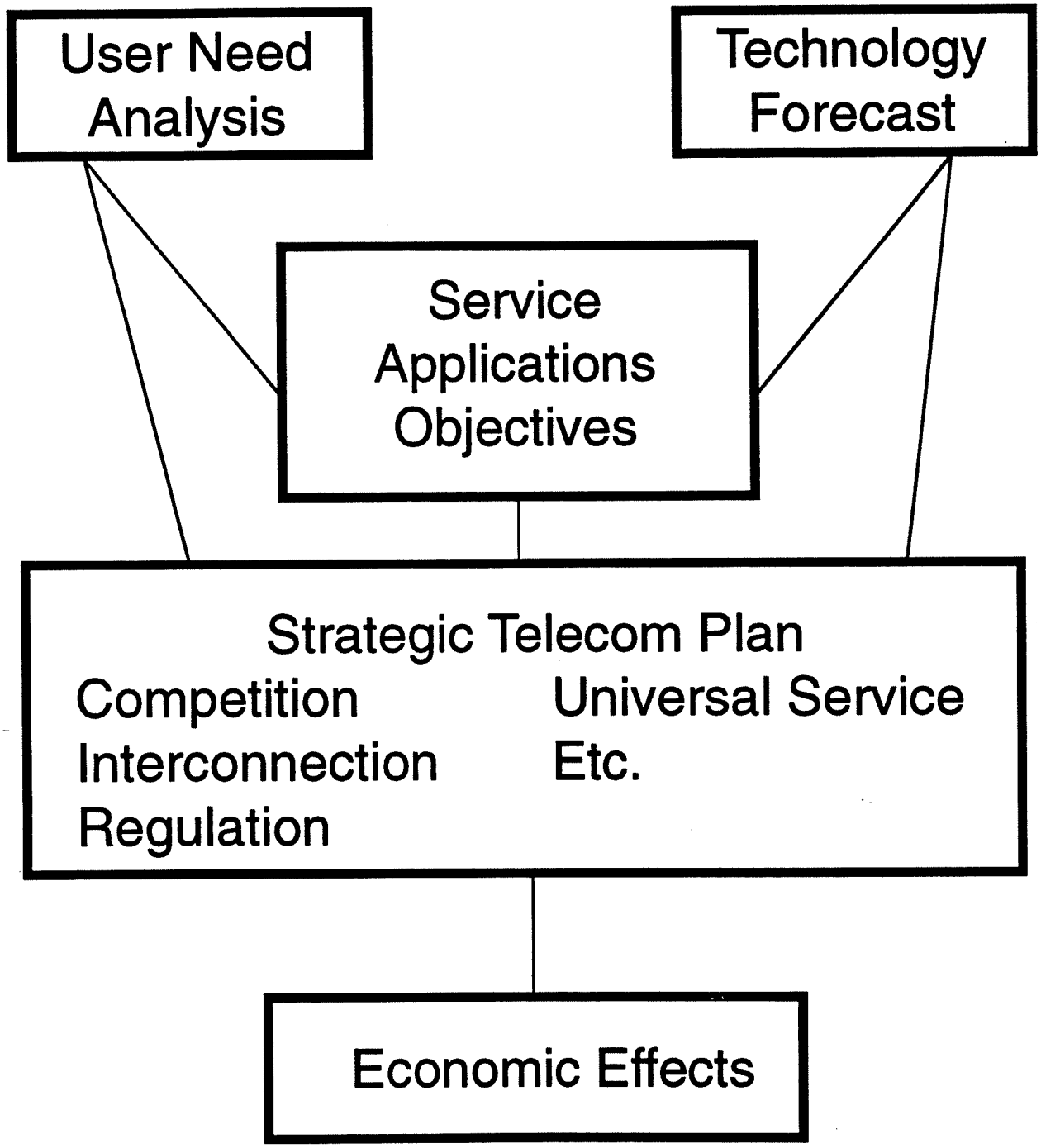
The KTEC Telecommunications Planning Committee has been formed to evaluate the telecommunications needs of KTEC and its programs, and to formulate recommendations to satisfy those needs in order to more efficiently forward the KTEC mission. The Committee will analyze existing systems and determine how new technologies will be integrated to enhance communications. Local and wide area networks, information systems, voice storage and transmission systems, video conferencing systems, facsimile systems, and certain carrier transmission capabilities will be reviewed for their potential

application to KTEC operations. The telecommunications capabilities of other state and federal agencies, academic institutions, and industrial organizations will be reviewed in order to ensure the compatibility of KTEC telecommunications systems with a wide range of systems in use and in the planning stage. The KTEC Telecommunications Planning Committee is chaired by a KTEC Board member and the Committee reports directly to the Board. The Board is composed of eight members chaired by Representative George Dean, with remaining membership from: KTEC (two members); Fort Hays State University; the Information Network of Kansas (INK); the Center for Excellence in Computer-Aided Systems Engineering, University of Kansas; the Kansas Board of Regents; and the Division of Information Systems and Communications.

VIII. Video Users Group

The Video Users Group was co-founded by Denise Moore, Kansas Department of Education, and Barb Paschke, Kansas Board of Regents, to facilitate videoconferencing among all sites on the state network. The Video Users Group is comprised of video site directors and other people interested in the development of videoconferencing in Kansas. This group meets by video on an ad hoc basis to discuss common concerns, such as rates for videoconferencing, the statewide network, maintenance of video equipment, software upgrades, technical problems, protocols, standards, and administrative procedures.

Kansas Project Flow Chart



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Attachment 2

CAPITOL TO CAPITOL

AN INFORMATION SERVICE OF NCSL'S ASSEMBLY ON FEDERAL ISSUES

National Conference of State Legislatures VOL. 3, #1 1/15/96

If you have questions regarding *Capitol to Capitol*, or if you need previous editions, please call Marilyn Turnbow @ 202/624-8691

ONLY ELEVEN MORE DAYS. Six appropriations bills remain unsigned as the sunset date of January 26, 1996 quickly approaches on H.J. Res. 134, the third continuing resolution for FY 1996. Passage and enactment of these six bills has been linked to reaching accord on a seven-year balanced budget plan. However, there are subtle signals that these unresolved appropriations issues may be settled aside and apart from disagreements over balanced budget proposals when the Congress reconvenes on January 22, 1996. Discretionary state-federal health, unemployment, job training, environment, education, justice, labor, human services and housing programs are currently being funded at the LOWER of the House or Senate proposed FY 1996 funding level or 75 percent of the FY 1995 appropriation. Recent enactment of H.R. 1643 and H.R. 1358 ensures states of Medicaid funding through September 30, 1996 regardless of future appropriations and balanced budget controversies. Similar assurances for AFDC, foster care and adoption assistance payments are provided through March 15, 1996. ***(NCSL staff contacts: Scott DeFife; Michael Bird)***

LEADER TO LEADER MEETING SCHEDULED FOR FEBRUARY. President Clinton, Senate Majority Leader Robert Dole and House Speaker Newt Gingrich headline the list of federal leaders invited to the February 7-9, 1996 Leader To Leader Meeting. Both House and Senate minority leaders, Representative Dick Gephardt (D-Missouri) and Senator Tom Daschle (D-South Dakota), have agreed to participate. Political commentator William Schneider is a plenary luncheon speaker. Senator Hank Brown (R-Colorado) will receive NCSL's annual "Restoring The Balance" award for various initiatives, most notably his amendment to ensure state legislative appropriation of federal block grant funds. ***(NCSL staff contacts: Michael Bird; Bill Waren)***

TELECOMMUNICATIONS: IS THE GLIMMER OF REFORM FADING? On December 21, 1995, the conference committee reconciling differences in House and Senate versions of telecommunications reform (H.R. 1555 and S. 652) produced a draft report exceeding 300 pages. As Congress sets to reconvene, Senate Majority Leader Bob Dole plans to delay final Senate approval until the question of providing free spectrum or airwaves for advanced television to network broadcasters is reviewed. The Majority Leader believes that the sale of spectrum rights would contribute an additional $70 billion to Congressional efforts to balance the federal budget. Rural issues as well as toll rate averaging language for phone service are among other concerns delaying final approval. The lack of a final agreement at this date is fueling the belief that telecommunications legislation will not pass until the 105th Congress. ***(NCSL staff contact: Neal Osten)***

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WELFARE REFORM VETOED AGAIN. Stand-alone welfare reform legislation, H.R. 4, was vetoed by President Clinton on January 9. An override of this veto appears highly unlikely. The President previously vetoed similar welfare provisions in omnibus reconciliation legislation, H.R. 2491. Therefore, prospects for any federal welfare reform legislation in the 104th Congress are seemingly linked to the ability of the White House and Congress to reach a balanced budget agreement. The version of H.R. 4 ultimately sent to the President embraced numerous NCSL amendments, including the "Brown" amendment, an unemployment contingency fund, increased child care funding, optional nutrition block grants on a demonstration basis in seven states, improved-yet still inadequate-immigration provisions and a softer reduction (10 percent) in Social Services Block Grant funding. **A detailed December 29, 1995 summary of the conference agreement on H.R. 4 is available from Amy Manning, 202-624-8188.** ***(NCSL staff contacts: Sheri Steisel; Michael Bird)***

CAPITOL TO CAPITOL ENTERS THIRD YEAR. This publication is now faxed to State-Federal Coordinators (legislative leaders or their appointees), NCSL Executive Committee members, Assembly on Federal Issues standing and steering committee members, legislative fiscal officers and legislative librarians. This 650 member fax roster is limited to ensure a speedy, nationwide distribution of time sensitive information. NCSL encourages individual state legislatures to distribute *Capitol to Capitol* to a wider audience through internal means. As *Capitol to Capitol* enters its third year, we seek your comments on content, presentation and distribution. ***(NCSL staff contact: Marilyn Turnbow)***

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Attachment 3