Exhibit No.:	
Issues:	*Various*
Witness:	*Robert E. Schallenberg*
Sponsoring Party:	*MoPSC Staff*
Type of Exhibit:	*Rebuttal Testimony*
Case Nos.:	*TC-93-224 & TO-93-192*

MISSOURI PUBLIC SERVICE COMMISSION

UTILITY SERVICES DIVISION

SOUTHWESTERN BELL TELEPHONE COMPANY

CASE NOS. TC-93-224 & TO-93-192

REBUTTAL TESTIMONY

OF

ROBERT E. SCHALLENBERG

Jefferson City, Missouri
May, 1993

REVISED

Exhibit No. 30
Date 7-15-93 Case No. TC-93-224 TO-93-192
Reporter Land

REBUTTAL TESTIMONY

OF

ROBERT E. SCHALLENBERG

SOUTHWESTERN BELL TELEPHONE COMPANY

CASE NO. TC-93-224 AND TO-93-192

Q. Please state your name and business address.

A. Robert E. Schallenberg, P.O. Box 360, Jefferson City, Missouri 65102.

Q. By whom are you employed and in what capacity?

A. I am a Regulatory Auditor with the Missouri Public Service Commission (Commission).

Q. Are you the same Robert E. Schallenberg who has previously filed direct testimony in this proceeding?

A. Yes, I am.

Q. What is the purpose of your rebuttal testimony in this case?

A. The purpose of my rebuttal testimony is to address Southwestern Bell Telephone Company's (SWBT or Company) TeleFuture 2 proposal. I will address various assertions made by the Company witnesses regarding the Southwestern Bell Incentive Regulation Experiment (SBIRE) and the concept of incentive or alternative regulation.

My rebuttal testimony will attempt to (1) identify the main areas discussed in the Company's direct testimony, (2) provide definition to the relevant terms, and (3) discuss the validity of the asserted relationship between areas. This approach will

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differ from the typical point-counterpoint method, which identifies each contested witness' statement and supplies a corresponding response. I believe that the issue of TF2 and the choice of different regulatory approaches to SWBT needs to be focused on the main issues rather than addressing each individual statement of a Company witness with which the Staff disagrees. By addressing the issues broadly, many specific statements may go unanswered. However, failure to address every specific statement should not be interpreted as concurrence.

ANALYSIS

Q. What are the main areas addressed in the Company's direct testimony?

A. There are three main areas addressed in the Company's direct testimony: Network Modernization (Company witnesses Frederick J. Huser, Wilbur Crossley, Donna L. Burk); Incentive Regulation (Company witnesses G. Mitchell Wilk, William E. Avera, Dale Robertson); and Competition (Company witness Gilbert T. Orozco). (Other witnesses filed supporting testimony to these main witnesses.) The network modernization area is generally comprised of two parts, the network component of SBIRE and the network component of TF2.

Incentive Regulation (IR) is the broadest area of the company's direct testimony. The IR area covers discussion of regulation in general, as well as the performance of SBIRE and the Company's TF2 proposal. Company witness Marla S. Martin provides financial analysis of the performance of SBIRE and future financial scenarios of various regulatory alternatives. Company witness William C. Bailey

supports the Company's TF2 proposal by describing in detail the rate design supporting the components of the $22 million rate reduction contained in the Company's TF2 proposal.

The final area is competition, which is primarily addressed by Mr. Orozco. His testimony addresses three principal points. First, that competition exists and will likely increase for certain SWBT services, such as local exchange private line, and special access and interexchange services, (page 2). Competition is cited as a major factor in Mr. Bailey's proposed rate design reductions in switched access and intra-LATA long distance. Second, that competition is a fundamental reason for the Commission to approve TF2. These first two points are discussed in more detail in the rebuttal testimony of Staff witness Samuel F. Goldammer of the Utility Operations Division. Third, that adoption of TF2 (and not traditional regulation or a different plan) will enable SWBT to effectively participate in the Missouri marketplace and aggressively invest in the network (page 16).

Q. What is your evaluation of the Company's direct testimony?

A. The Company's discussion of the three main areas (competition, incentive regulation, and network modernization) with the underlying supporting argument forms a paradox. The Company's testimony is self-contradictory and is based on wrong or mistaken assertions. Mr. Wilk provides an example of the contradictory nature of the Company's testimony. Mr. Wilk states that "traditional regulation" (TR) is basically a cost-plus arrangement (page 24) which encourages companies to increase rate base ("goldplating", page 15) while discouraging any need

to control costs (pages 15 and 24). This "goldplating" concept is supported by the argument that since profits are based on a return on rate base, the higher the rate base, the greater the profits. Yet it is the TF2 proposal (a so-called form of incentive regulation) that results in the higher rate base and higher level of expense. Further, Mr. Wilk believes that TR provides the "incentive to 'goldplate' which is to increase the rate base as a source of profitability without necessary regard to the usefulness of the resulting investments." (page 16)

Mr. Avera apparently disagrees. He states on page 15 that "If a utility does not expect to earn more that [sic] its 'bare bones' cost of equity, management is indifferent between pursuing or not pursuing a project." Therefore, while Mr. Wilk states that TR causes utilities to "goldplate" or increase rate base; Mr. Avera states that TR discourages rate base investment since a utility can expect to earn no more than its "bare bones" cost of equity.

Further, Mr. Orozco testifies of the ever increasing competitive environment for the Company, which will lead to services recovering their costs and the elimination of subsidies. At the same time, SWBT is proposing that it be allowed to engage in providing a service that will not recover its costs, i.e., distance learning (Bailey, page 30). Therefore, the distance learning service will need to be subsidized by SWBT's other services. The distance learning proposal is more consistent with the behavior of a monopoly utility than the behavior of a competitive enterprise. The monopoly utility will offer services that can be priced to cover the losses of other services such as distance learning.

Another example of the illogical nature of the Company's direct testimony is the implication that without Commission approval of TF2, SWBT will not reduce its costs and introduce new products and services to the same level that the Company would with adoption of TF2. Yet, Mr. Orozco states that SWBT currently operates in an ever-increasing competitive environment. If Mr. Orozco's competitive analysis is accurate, this behavior would mean that SWBT will only be replaced in the marketplace by the competition with lower costs and new products if the changes are not made regardless of the form of regulation. I believe this example is indicative that this so-called "incentive regulation" does not produce lower cost levels and/or more new services than so-called "traditional regulation" with the existence of competition. Once a utility perceives that the threat of competition is real, it will reduce its costs and prepare for competition. So-called incentive regulation is not the driver to that reaction.

I know of no utility that has acknowledged that historically the Company was mismanaged. Utility management has always had the responsibility to operate their Company efficiently. Utilities have had to rely on cost reductions as sources of earnings growth, since few can justify overall rate increases. For example, SWBT cites the rate increase moratorium as a benefit of SBIRE. In reality, SWBT never had earnings levels that could support a rate increase. Even without increased competition, utilities should be motivated to decrease costs.

Incentive regulation as advocated by SWBT is a proposal to allow the utility to maintain its monopoly profits until such a time that competition forces the Company

to reduce its prices. Without effective competition, the consumers of utility services have only one meaningful choice (i.e., the service and price offered by the utility). The only way to determine whether a utility charges a reasonable price is to determine if its profits are reasonable when no effective competition exists.

There are two key questions in this case. The first question is whether sufficient competition exists to prohibit SWBT from charging prices that result in excessive profit levels. The second question is whether incentive regulation will produce a level of additional savings to benefit customers that would not result without that regulatory scheme. The answer to both questions is "no". This will be discussed later. Therefore, TF2 is not in the public interest as compared to the Staff's complaint case.

Q. What is the cause for the contradictory statements in the Company's direct case?

A. The Company's direct case fails to identify the actual core or primary driver for the TF2 proposal. The key to understanding the TF2 proposal is to understand that TF2 is merely a strategy or action item undertaken by the Company to satisfy the overall Southwestern Bell Corporation (SBC) corporate goal for SWBT to earn more money. This goal pressures SWBT to design items to both protect and increase SWBT earnings. The Staff's complaint case is a threat to SWBT's earnings. Therefore, SWBT must construct an alternative that it can propose to protect its earnings against the complaint case alternative.

Q. Are you saying that it is wrong for the Company to earn more?

A. No. There are circumstances when it would be appropriate. For example, a basic conceptual test of so-called incentive regulation is that this different regulatory scheme will produce a lower cost structure than would have existed otherwise under traditional regulation. The reward for these additional cost reduction actions is that the Company is allowed to retain some of the increased earnings, resulting in greater earnings for its shareholders. Further, under these so-called incentive regulation/sharing plans, customers are better off because they pay less overall than they would have without the additional cost reduction actions. However, these conditions do not apply to SWBT and/or SBIRE.

The key element for the success of this so-called incentive regulation is additional cost reductions that would not occur without the incentives. These additional cost savings are the source of the additional earnings for the Company and sharing credits to customers under plans like SBIRE. However, if no cost savings over and above what would normally be realized actually occur due to the plan, then state regulatory commissions are allowing companies to retain additional earnings resulting from cost of service changes that are historically flowed-through to customers in rates. Ratepayers will be harmed by a so-called incentive regulation scheme under these circumstances. Without additional cost reductions, plans like SBIRE reflect simply an elimination of rate reductions historically due to customers, thereby resulting in higher profits for the Company's shareholders. In other words, SBIRE type regulation converts customer rate reductions into higher corporate profits. The question of

whether SBIRE actually produced any additional savings will be discussed later in this testimony.

Q. What are your overall conclusions regarding the Company's direct testimony?

A. The following list identifies my conclusions regarding the Company's direct testimony:

- The Staff complaint case will not result in the earnings levels shown in the Company's direct testimony, but will produce higher ROE levels. These earnings levels are understated by SWBT.
- SBIRE is not the success SWBT touts in its testimony. SBIRE has resulted in SWBT-MO's customers paying more to the Company than they would have paid without SBIRE.
- SWBT's earnings level does not directly influence the amount of SWBT's construction program; SWBT's depreciation expense does. SWBT's earnings generally reflect cash handed over to the SBC parent company to use for dividends and non-telephone acquisitions (e.g., Telmex, cellular acquisitions).
- SBIRE did not result in SWBT-MO receiving a materially different level of construction expenditures than would have resulted without SBIRE.
- SBIRE did not result in SWBT-MO achieving any additional cost reductions than would have occurred without SBIRE.

- There is no evidence that SBIRE had a positive or significant impact on Missouri's economic development. In fact, all hard evidence indicates the opposite.
- SBIRE was a negotiated settlement and did not establish any principle, methodology, and/or precedent in any way binding in this proceeding. SWBT's TF2 proposal attempts to maintain the attractive aspects of SBIRE (from SWBT's viewpoint) while decreasing the Company's commitment (i.e., lower rate reductions and capital commitments).

Q. What are the bases for your conclusion that the Staff's complaint case will not result in the earnings level shown in the Company's direct testimony?

A. The return on equity (ROE) figures shown by the Company of 6.16% (1994) and 6.90% (1995) claimed to result from the Staff's complaint case are wrong. The Company also provides a second set of claimed returns (i.e., 3.18% and 3.92%). These returns are provided as part of the Company's attempt to legitimize the unnatural relationship between SWBT and its Yellow Page operations reflected on the Company's books. This point will be addressed in the rebuttal testimony of Staff witness Cary G. Featherstone. The errors reflected in the 6.16% and 6.90% figures are also reflected in the lower returns.

The major error in the Company's calculations is the treatment of the Staff's $150 million rate reduction as being totally related to reductions to ROE. The Staff's complaint case is based upon certain costing methodologies (e.g., non-adoption of FASB 106, new depreciation rates, Kansas City Data Center being included in

regulated results) that are not considered by the Company in estimating the impacts of the Staff's complaint case. The Company's calculation assumes net income will decline by $90 million in 1994 and in 1995. SBC stated in its 1992 annual report to its shareholders that, regarding the Staff's complaint, "Management believes that the future impact [of the Staff's earnings complaint] on financial results will not be material; however, an estimate cannot be made at this time." It is interesting to note that in its annual report, the Company did not provide the net income estimate that underlies its ROE projections in its direct testimony. In fact, the Company has stated publicly that an estimate could not be made at this time even though it chose to provide an estimate in its direct testimony.

The $90 million estimated net income reduction impact claimed by SWBT is wrong. A major portion of the Staff's $150 million complaint case is based on costing methods that would also be adopted when the rate reductions are implemented. This is a common result of any rate case and took place when the $82 million rate reduction in Case No. TC-89-14 was implemented. For example, the Staff's case in Case No. TC-89-14 did not include the expenses from adoption of the Federal Communications Commission's new Uniform System of Accounts (Part 32). When the Missouri Commission adopted Part 32, the amount of the Staff's complaint request was reduced by the additional expenses SWBT would record under Part 32. The 6.16% and 6.90% ROE cited in the Company's direct testimony include the expenses related to the adoption of Financial Accounting Standard No. 106 (FAS 106). The Staff's $150 million complaint case does not include the expenses related to the adoption of FAS

106. If FAS 106 is adopted by the Commission, then the Staff's complaint case will be reduced.

FAS 106 expense consists of two components: 1) the "transition benefit obligation" (TBO); and 2) the ongoing estimate of post retirement benefit costs. SWBT has included the TBO expenses in its 1994 and 1995 calculations of the ROE resulting from the Staff's complaint. However, the Company intends to write the TBO off in 1993 for financial reporting purposes. Therefore, SWBT is reflecting this expense twice which results in understating the ROE impacts of the Staff's complaint by approximately 150 basis points. Correcting for this factor alone increases the estimated ROE to 7.64% and 8.39% in 1994 and 1995, respectively. It should be noted that SWBT-MO does not currently expect to reflect the TBO expense on its books for the years 1994 and 1995. Therefore, the TBO expense adjustment is not only incorrect, it is also contrary to the Company's alleged objective of using the financial results SWBT will reflect on its books.

SWBT has included the ongoing estimate of the FAS 106 accrual in its 1994 and 1995 calculations of the ROE resulting from the Staff's complaint. The expenses related to this ongoing estimate over the pay-as-you-go expense amount were not included in the Staff's complaint case. If the Commission adopts FAS 106, then the Staff's $150 million rate reduction will be reduced. If the Commission does not adopt FAS 106, then the ongoing post retirement benefit estimate will not be included in determining SWBT's ROE for its SWBT-MO intrastate operations. Removal of the ongoing accrual would increase the SWBT-MO ROE by approximately 75 basis points.

The ROE results would then be 8.39% and 9.12% in 1994 and 1995, respectively, after the correction of the FAS 106 treatment in the Company's calculations. The FAS 106 error is the largest error in the Company's ROE calculation. However, it is not the only error.

The Company's ROE calculation fails to consider that the Staff's complaint case: 1) treats the Kansas City Data Center as being regulated; 2) uses the new depreciation rates sponsored by Staff witness John O. Richey of the Telecommunications Department; and 3) is based on the Staff's tax calculation. All these items are treated differently in the Company's ROE calculation which purports to reflect the impacts of the Staff's complaint case. Corrections of these items, in addition to the FAS 106 changes discussed earlier, would increase the ROE to at least 9.39% and 10.42% in 1994 and 1995, respectively. A complete analysis of all costing method differences can not be done at this time. However, the Company should earn the ROE recommended by the Staff if the Staff's complaint case is adopted. The ROE will of course be different if it is calculated on a different basis than the cost basis used by the Commission, which is precisely what was done to obtain the range contained in Ms. Martin's testimony. The Company has claimed ROE results based on a different calculation than would be used by the Commission or even reflected on its own books.

Q. What is the basis for your conclusion that SBIRE has resulted in SWBT-MO's customers paying more to the Company than they would have paid without SBIRE?

A. This conclusion is based on certain corrections and extensions of the analysis performed by Mr. Robertson in his direct testimony. The analysis is a comparison between the additional rate reduction (i.e., $19 million) ordered in the Commission initial rate reduction decision in Case No. TC-89-14 (i.e., $101 million), and the customer credits generated by SBIRE during its term. The following chart shows the comparison through the current life of SBIRE:

	1990	1991	1992	1993 (Projected)	TOTAL
Case No. TC-89-14 Rate Reduction	$19,332,500	$20,009,138	$20,709,457	$21,434,288	$81,488,383
SBIRE Credits	$22,825,000	$22,228,000	- 0 -	$14,670,000	$59,723,000

The above chart shows that SWBT-MO ratepayers will pay approximately $22 million more because of the SBIRE settlement. The above Case No. TC-89-14 rate reduction amounts consider usage growth over time. I used the same growth factor and method used by the Company to measure the ROE impacts of the $150 million rate reduction in the Staff's complaint case. The customer credits and the $82 million rate reduction are an example of what is referred to as "buy-in costs" internally at SBC. "Buy-in costs" from SBC's perspective are up-front costs or detriments which are agreed to by SBC in order to achieve a long-term goal, i.e.; increased retention of what would be considered overearnings under traditional regulation. Internally, the Company notes that growth and stimulation are offsets to the rate reduction component of the "buy-in costs" that SBC has agreed to with state commissions. The 1992 SBIRE credit amount is based on the Company's current estimate. The 1993 SBIRE

credits are the highest Company estimates that I have received. These credit levels are based upon the Commission rejecting FAS 106 and continuing to use the pay-as-you-go treatment for post retirement benefits. It should be noted that I am aware of estimates as low as $348,000 for SBIRE credits in 1993 which reflect the Commission's adoption of FAS 106. If the Commission adopts FAS 106, then the SBIRE credits will be substantially less. This will result in Missouri ratepayers paying even more as a result of SBIRE.

Q. What portion of the Company's direct testimony does your conclusion that SBIRE resulted in ratepayers paying more to the Company than they would have without SBIRE address?

A. This conclusion addresses the Company's witnesses' statements in their direct testimony that SBIRE was a success because it resulted in customer credits. Further, this conclusion also addresses the following statement contained in the Company's direct testimony:

> The results of the first two years of the plan have produced sharing levels of approximately $22M each year, which would yield an actual annual revenue reduction of $104M ($82M + $22M). In addition, the schedule of modernization projects has been maintained. Thus, for 1990 and 1991, the incentive plan produced results for customers in the form of stable or lower prices, updated plant and increased availability of services that were better than those they would have received under traditional regulation.
>
> To put it in a different perspective, the Company could have earned <u>better</u> in this particular situation if the $101M reduction, which was originally ordered in Case No. TC-89-14, et al., had been accepted and no

> subsequent incentive regulation plan implemented. As shown above, during 1990 and 1991, Company revenues could have been over $2M greater each year and the costs associated with the aggressive network modernization plan could have been avoided. In summary, the Company may well have earned better under traditional regulation. (Robertson, page 6).

Mr. Robertson's statements are inaccurate because they fail to consider the third year of SBIRE. While Mr. Robertson did not have available at the time of his direct testimony the latest estimate of the third year of SBIRE credits, he did have available an estimate that would show that by the third year the Company revenues were higher under SBIRE then under the rate reduction ordered in Case No. TC-89-14. Correspondingly, the data would show that SWBT earned better under SBIRE than under traditional regulation. Therefore, the fact that SBIRE issued credits in its first two years is not necessarily a benefit to Missouri ratepayers when compared to the foregone rate reduction in Case No. TC-89-14.

Q. What is the basis for your conclusion that earnings do not directly influence SWBT's construction program?

A. There are two points that form the basis for that conclusion. First, all earnings generated by SWBT are paid to the Parent Company, SBC. These earnings have been used by the Parent Company to pay dividends to the shareholders of SBC and acquire non-telephone property (e.g., Metromedia, Telmex). SWBT does not retain any of its earnings to invest in construction activities. This leads to the second point.

The second point is the existence of the SBC policy requiring SWBT to generate all its cash needs for construction internally, while at the same time paying out all the cash SWBT generates from earnings to the Parent Company. The main source of funds for telephone construction under this policy is the depreciation generated by SWBT. SWBT is the "cash cow" of SBC. The following chart shows the amount of cash generated through depreciation at SWBT annually and the amount of cash spent on construction for the period 1986 through 1992:

Dollars in Millions	1986	1987	1988	1989	1990	1991	1992
Cash from Depreciation	$1,389.6	$1,613.1	$1,678.3	$1,711.2	$1,500.3	$1,555.5	$1,615.0
Cash Spent on Construction	$1,834.7	$1,381.0	$1,091.3	$1,282.6	$1,479.0	$1,475.3	$1,617.4

The above chart shows that SWBT generated $11.0 billion cash from depreciation and spent $10.2 billion cash for telephone construction. The following chart shows the cash SWBT generated from its earnings and the cash SWBT paid to the Parent Company in dividends:

Dollars in Millions	1986	1987	1988	1989	1990	1991	1992
Cash from Earnings	$919.5	$1,004.1	$1,021.8	$943.2	$969.1	$855.3	$964.1
Cash Dividends Paid to Parent	$886.6	$1,059.4	$1,007.7	$970.3	$947.2	$855.4	$960.6

The above chart shows that SWBT generated $6.7 billion in earnings and paid $6.7 billion in cash to the Parent Company. This chart shows that SWBT earnings

result in cash made available to the Parent Company. The following chart shows the Parent Company's use of SWBT cash earnings:

	1986	1987	1988	1989	1990	1991	1992
Cash Dividends from SWBT	$886.6	$1,059.4	$1,007.7	$970.3	$947.2	$855.4	$960.6
Cash Dividends to SBC Shareholders	$627.6	$626.4	$656.1	$693.4	$732.8	$759.3	$780.4

This chart shows that while SWBT paid $6.7 billion of cash dividends to the Parent Company, the Parent only paid $4.9 billion to the holders of SBC stock. Therefore, SWBT cash dividends provided $1.8 billion to the Parent for other purposes, i.e., to buy other companies. Approximately $1 billion was used to purchase stock in a telephone company in Mexico (i.e., Telmex) and $600,000 was used to purchase cellular and paging operations from Metromedia. These charts are based on data that SBC discloses to the public. However, this data actually understates the earnings and cash generated by SWBT because this data does not actually reflect an appropriate relationship between SWBT and its Yellow Page operations. This matter is addressed in the rebuttal testimony of Staff witness Featherstone.

Q. What portions of the Company's direct testimony does this conclusion address?

A. This conclusion addresses the assertions in the Company's direct testimony that the Company's earnings directly impact the Company's network expenditures. SWBT's earnings impact the amount of cash the Parent Company has

for non-SWBT acquisitions. Therefore, if the Commission is interested in increasing network expenditures in Missouri, then the Commission should reflect any ratepayer monies for this purpose as additional depreciation/amortization, not as additional earnings. The additional depreciation/amortization will be reflected as an offset to the Company's rate base. In this way, the customer will be given credit for the monies the Commission determined they must provide to support additional construction expenditures. This is another example of the paradox created by TF2 and/or incentive regulation. States in the SWBT service territory without incentive regulation only upgrade the network on an economic-only basis, whereas states in SWBT's territory with incentive regulation have accelerated modernization programs.

Q. What is the basis for your conclusion that SBIRE did not result in SWBT-MO receiving a materially different level of construction expenditures than would have resulted without SBIRE?

A. The basis of this conclusion is an analysis contained in the rebuttal testimony of Staff witness Greg R. Meyer. This analysis shows that SBIRE did not change the percentage of overall construction dollars committed to SWBT-MO compared to the other four states in SWBT's service territory. Mr. Meyer will discuss the portions of the Company's direct testimony that are addressed by this conclusion.

Q. What is your basis for your conclusion that SBIRE did not result in SWBT-MO achieving any additional cost reductions than those that would have occurred without SBIRE?

A. There are three points that form the basis for this conclusion. First, there is no conclusive testimony or evidence from SWBT identifying any specific action of the Company that resulted in savings directly related to SBIRE. Second, Ms. Martin's testimony, which discusses alleged SBIRE savings, is careful never to categorically state that any of the actions discussed in her testimony were directly caused by SBIRE. Third, the actions that SWBT engaged in that resulted in the savings identified in SWBT's testimony are the same actions that SWBT and other companies have engaged in prior to Case No. TC-89-14, let alone SBIRE. The alleged behavior of SWBT during SBIRE is similar to SWBT's behavior before SBIRE.

The first point is self explanatory. The Company witness who specifically addresses savings is Ms. Martin. She is careful to describe the savings as those that took place during the period of SBIRE instead of as savings that directly resulted from SBIRE. This is illustrated by the following statements in her testimony:

> Efficiency gains and cost savings are important components of any incentive regulation plan. Demonstrating their existence is an essential part of evaluating the success of the Plan. Consequently, this section is dedicated to discussing and quantifying the efficiency gains the Company achieved under the three-year Plan. It is not my intent to portray the gains made by the Company to be the sole result of the Plan, but I believe the Plan was definitely a significant factor. (page 20; emphasis added)

> A review of the financial results in Section II of my testimony revealed that one of SWBT-MO's significant achievements during the Plan was a reduction in expenses per access line. Much of that gain resulted from the Company's concerted efforts to become more efficient and to cut or contain costs. The specific

> programs I have described provide clear evidence of those efforts. The quantification of the related savings provide verifiable proof of those gains, gains that amount to $33.6 million on an annual intrastate basis.
>
> While it is not my testimony that the Plan alone motivated the Company to focus on efficiency and cost cutting, it clearly provided incentives that reinforced the Company's efforts to act aggressively in those areas. Although it is not possible to quantify precisely what level of cost cutting may have occurred in the absence of any incentive plan, it is clear the Plan has produced positive results that benefit both the Company and its customers.
> (pages 31 and 32; emphasis added)

The above statements show that Ms. Martin does not state that SBIRE caused additional cost savings. The identified savings merely occurred during the period of SBIRE and Ms. Martin states that SBIRE influenced these decisions. However, these decisions and related cost savings are not unique to SBIRE, but have been and continue to be common business practices.

Ms. Martin identifies two types of savings. The first type of savings is bond/debt refinancing. Staff witness Jay M. Moore of the Financial Analysis Department addresses in his rebuttal testimony the fact that these actions have occurred prior to SBIRE and are not a unique practice related to so-called incentive regulation. The second type of savings is employee force reductions. Force reductions are not unique to SWBT. Force reductions have occurred at other utilities in the state. In fact, St. Joseph Light and Power Company, which was involved in a recent complaint case, has had a recent force reduction. Force reductions have been a common occurrence at SWBT for at least a decade. For example, in August, 1983, the Vice

President-Missouri for Southwestern Bell Telephone Company testified in Case No. TR-83-253 that SWBT's Missouri operations were efficiently managed with excellent service levels. The following is an excerpt of that testimony:

> In my previous testimony I provided the Commission significant detail as to the efficient management of Southwestern Bell's Missouri operation. All that I said before still applies, but I want to take this opportunity to expand somewhat on what was previously said. The service levels at that time were excellent, and they continue to be so. The expense controls were evidenced in part by the 1982 reduction of 220 employees that I described. That trend is continuing. Since January 1, 1983 we have reduced an additional 434 employees. That does not include the employees transferred to ABI as a result of CI-II. Our Missouri monthly operating expense per line through May is 38.99 as compared to 42.20 for Southwestern Bell and 43.66 for the Bell System. The Missouri total factor productivity completely outstripped the national economy as I previously testified. Schedule No. 6 shows that our employees per 10,000 access lines are significantly lower than the Company or System. In an attempt to provide more definitive evidence as to the efficiency and quality of the management of the Missouri operation, I've requested members of my management team to summarize the programs, procedures, systems and other measures taken by the Company over the past several years to improve efficiency and productivity.
>
> [Barron Supplemental Direct, page 5.]

The above quote shows that SWBT used reductions in workforce and reductions in expense per access line to prove the efficiency of its management far in advance of any discussion of incentive regulation. The above quote shows that SWBT had the incentive to and, in fact, reduced force and expenses per access line under traditional regulation.

Schedule 1 is the testimony and schedules of the Vice President-Missouri for Southwestern Bell Telephone Company in Case No. TR-83-253. A comparison of this Schedule with the Company's direct testimony in this case shows that the discussion of alleged SBIRE savings in this case is nothing more, and actually less, than SWBT's discussion of its efficiency and service levels nearly ten years ago.

The workforce reductions that make up the majority of the alleged SBIRE related savings discussed in Ms. Martin's testimony are not caused by incentive regulation. Schedule 1 shows that such things as workforce reductions and comptroller consolidations can and have been components of traditional regulation. Today, workforce reductions are common in Corporate America and are influenced by competition, not incentive regulation. This can be shown in the following excerpt from the October 7, 1991 monthly report to Missouri Division employees by the President-Missouri Division, Southwestern Bell Telephone:

> Our business has become one in which quick changes and constant streamlining are essential.
>
> The slump we've seen in the economy in the last year makes those traits even more important. But, the economy was not the driving force in our decision to offer the early retirement package announced September 27.
>
> The decision was based on a variety of factors . . . with competitiveness being the greater goal. Like other businesses, we have sought to be as efficient as possible. As we move toward an organization that is quicker to respond to customer needs, we need to continually evaluate our procedures. This evaluation ensures we're making the smartest decisions in the

> fastest way possible, instead of being slowed by a bureaucratic process.
>
> Largely through attrition, the number of non-management employees has gone down in the past few years. Management numbers have decreased, too, but not in the proportion needed to trim expenses enough or flatten out the organization and give more responsibility to the individual employee. Consequently, we needed to reduce the number of management employees.
>
> At the same time, reduction was not the all-consuming goal., We also wanted to be sure that customer service would not suffer, that the company's earnings would not be unduly affected and, above all, that employees would be treated as fairly as possible. The voluntary program we announced at the end of last month provides ample compensation to those choosing to retire or leave the company. And, I hope those who choose to take the plan will leave with a secure future.
>
> For many of us, this is an unsettling event. That's certainly understandable. On the other hand, streamlining the business has become a way of life for Corporate America and more recently our industry. The goal must be for us to continue to look for ways to be the most efficient, effective company we can be. This is never a painless process, but I hope we can make it as painless as possible and still get on with the job of performing in the way our customers and shareowners have come to expect.
> (emphasis added)

The above excerpt shows that the workforce reductions would have occurred without SBIRE. Workforce reductions will continue without SBIRE. This can be shown on Schedule No. 14 of Ms. Martin's direct testimony. Here, SWBT assumes that "force levels will decrease 1% or less on an annual basis." This assumption is constant through all of the Company's scenarios including the scenario reflecting the

Staff's complaint case. However, the most telling aspect that so-called incentive regulation produces no additional cost savings is in the Company's scenarios. The Base View, Telefuture 2 (TF2), and the Staff Proposal scenarios discussed in Ms. Martin's testimony all include the same basic level of cost savings. Therefore, TF2 produces no more cost savings than the Staff's complaint case, which the Company describes as a return to traditional regulation.

Q. What is your basis for the conclusion that there is no evidence that SBIRE had a positive or significant impact on Missouri's economic development?

A. There are two facts that support this conclusion. First, the Company's testimony has provided no evidence showing any positive or significant SBIRE impact on Missouri's economic development. Second, the Company has provided evidence of significant negative impacts to Missouri economic development directly related to actions that the Company asserts were influenced by SBIRE. For example, Ms. Martin's Schedule No. 10 shows that the Company's workforce reduction programs eliminated 890 jobs in Missouri. Mr. Keely states that the SBIRE Network Modernization Project was itself responsible for the reduction of 114 of those 890 jobs. Therefore, for SBIRE to be a positive benefit to Missouri, it must create over 890 new jobs.

There is one other point related to the Company's force reductions. TF2 is a proposal to allow SWBT to keep some of the earnings related to jobs lost in Missouri. SWBT earnings result in cash available for non-telephone acquisitions. Therefore, the Staff's complaint proposal, with its Missouri rate reductions, would retain the savings

associated with the Missouri lost jobs in the state. This would be preferable from a Missouri viewpoint than an alternative that takes the savings associated with the lost jobs in Missouri to increase the SBC fund for acquisitions.

Q. What is the basis for your conclusion that SBIRE was a negotiated settlement and did not establish any principle, method and/or precedent in any way binding in this proceeding?

A. The basis for this conclusion is the language from the agreements that ultimately formed and implemented SBIRE. The following language supports this conclusion:

> 9. By executing this Joint Recommendation, the parties shall not be deemed to have approved or acquiesced in any ratemaking principle, valuation methodology, method of cost of service determination, cost allocation or any legal principle underlying any of the provisions and agreements contained in this Joint Recommendation. This Joint Recommendation shall not prejudice, bind or affect any party in any other manner or proceeding, except to the extent necessary to give effect to the terms of this specific Joint Recommendation. Neither the contents of this Joint Recommendation nor any negotiations concerning this Joint Recommendation shall be used as proof of an admission by any party hereto in any case or proceeding except to the extent necessary to obtain approval or enforcement of the terms of this Joint Recommendation.
>
> 10. The terms, conditions and agreements set forth in this Joint Recommendation have resulted from extensive negotiations among the parties and are intended to resolve all issues presented in Case No. TO-90-1. (Order Granting Interventions and Approving Joint Recommendation, Attachment A, pages 18-19, Case No. TO-90-1, March 15, 1991 [Order, Case No. TO-90-1]).

. . . .

8) The parties agree that this Settlement Agreement is a negotiated settlement of the litigation pending in Cole County Circuit Court Case No. CV189-0808cc, et al., and of Case No. TC-89-14, et al. . . . .

9) None of the parties to this Settlement Agreement shall be deemed to have approved or acquiesced in any ratemaking principle, valuation methodology, method of cost-of-service determination, or cost allocation underlying any of the provisions and agreements contained in this Settlement Agreement. This Settlement Agreement shall not prejudice, bind or affect any party thereto, except to the extent necessary to give effect to the terms of this Settlement Agreement.

(Emphasis added; Order, Case No. TO-90-1, Attachment A, pages 26-27.)

The above language also shows the SBIRE relationship to the ultimate $82 million rate reduction reflected from Case No. TC-89-14. The significance of this point is the comparison of SBIRE to the Company's TF2 proposal. The following chart compares significant aspects of SBIRE and TF2:

	SBIRE	TF2
Rate Reduction	• $82 million	• $22 million
3 Year Capital Commitment	• $150 million	• $82 million
Earnings Grid for Sharing and Company Retention	• same	• same except for modification for Yellow Pages
Term	• 3 years	• no definite term

The above chart shows SWBT's TF2 proposal is offering (buy-in costs) significantly less than those contained in SBIRE in order to retain the same earnings level retention for an indefinite period. TF2 is much less attractive than SBIRE except from the Company's perspective (higher earnings). In other words, SWBT is offering less now than it did to reach the SBIRE agreement.

Q. What portions of the Company's direct testimony does your conclusion that SBIRE was a negotiated settlement and established no principles, methodologies and precedent address?

A. The following statements in the Company's testimony are addressed by the fact that SBIRE was a negotiated settlement establishing:

- The 14.1 percent ROE target in the Missouri Plan was negotiated after the Commission made a specific 12.61 percent cost of equity finding in Case No. TC-89-14. The additional 1.49 percent above this "bare bones" cost of equity was not an accident or oversight; rather, it was integral to the overall agreed-upon incentive structure of the Missouri Plan. (Avera, page 18.)

- Ms. Martin's statements on page 38 of her testimony rely on the above conclusion reached by Mr. Avera.

- The whole purpose of the plan [SBIRE] was to give the Company the opportunity to grow its earnings and to encourage the Company to invest in the state while protecting basic service customers from price increases. The plan did just what it was supposed to do and the Company should not be penalized for the success it achieved. (Robertson, page 10.)

- When incentives and corresponding commitments are involved, continuity is a primary consideration. In terms of efficiency improvements, Southwestern Bell and other telephone companies can achieve the most if they can rely on a continuing commitment from the Commission (which is predicated, of course, on Southwestern Bell also upholding its commitments). On the other hand, it would represent a form of "breaking faith" for the Commission to offer improved incentives and then come back and take away what was achieved in reliance on those incentives; such action would strongly encourage no more than a short-term, skeptical reliance on such Commission policies in the future. (Wilk, pages 48-49.)

The fact that SBIRE was a negotiated settlement establishing no principles addresses two themes in the above Company testimony. The first theme is that the SBIRE sharing grid was established by beginning with the 12.61% ROE reflected in the Commission's Order in Case No. TC-89-14 and adding some designed margin for some efficiency purpose. SBIRE was the result of extensive negotiations. The how and why the parties arrived at their decision to enter into the SBIRE agreement will (1) differ from party to party, and (2) be undeterminable at this time.

The second theme is that the Staff is suggesting the Commission "break" some agreement or back out of a bargain that was made in SBIRE. Mr. Robertson's statements regarding the purpose of SBIRE form the basis of this theme. He then goes on to state that the Staff's position is punishing SWBT for SBIRE's success. Mr. Wilk describes the Staff's position as "breaking faith" with SWBT. Mr. Robertson's fundamental statement regarding the purpose of SBIRE is untrue. The word

"experiment" in SBIRE should have alerted all parties that SBIRE would not be a long-term program without the need for further review. The purpose of SBIRE was to settle the litigation resulting from the Staff's prior earnings investigation of the Company. The litigation was settled:

> because of concerns regarding a costly and extensive delay in the implementation of rate reduction to the Company's customers and the potential for an extensive delay in the modernization of the Company's network; and in an effort to provide the Company's shareholders with a potential for growth and ability to share the resulting growth in earnings with customers.
> (Order, Case No. TO-90-1, Attachment A, page 23.)

Q. Do you have any final points you need to address?

A. Yes. There are two points. First, I need to address the ROE impact of SWBT's proposals for Yellow Page removal and the use of an actual SWBT capital structure. Second, I need to address that an $82 million construction program is not comparable to an annual $82 million rate reduction.

Q. What impact would removal of Yellow Pages and use of an actual capital structure have on SWBT's ROE?

A. The removal of Yellow Pages would impact the ROE by 366 basis points and the use of an actual capital structure of 42% debt and 58% equity would impact the ROE by approximately 25 basis points.

Q. Is an $82 million construction program comparable to an $82 million rate reduction?

A. No. The $82 million construction program is a one time expenditure. An $82 million rate reduction will recur every year. In other words, ratepayers could pay the entire TF2 construction program costs by merely delaying an $82 million rate reduction one year.

The following chart provides a comparison of the Company's estimated Missouri intrastate revenue requirements for Distance Learning/TeleMedicine and an $82 million rate reduction:

	1994	1995	1996
Rate Reduction	$82,000,000	$82,000,000	$82,000,000
Distance Learning/ TeleMedicine	$ 3,033,693	$ 5,948,233	$ 3,687,466
Difference	$78,966,307	$76,051,767	$78,312,534

The above chart shows approximately a $78 million impact difference between an $82 million rate reduction versus the $82 million construction program for Distance Learning/TeleMedicine. One should not consider the Distance Learning/TeleMedicine proposal to be comparable to an $82 million rate reduction. As a rule of thumb, an $82 million construction program would equate to a $16 million revenue requirement at the time the construction is completed. Over a three year construction period, the average revenue requirement would be $8 million.

Q. Is the $8 million the intrastate revenue requirement impact of Distance Learning/TeleMedicine?

A. No. The $8 million only represent the revenue requirement associated with the construction expenditures without consideration of separations, project expenses and revenue offsets. The numbers in the above chart represent the intrastate revenue requirement for Distance Learning/TeleMedicine.

Q. Does this conclude your rebuttal testimony?

A. Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

The Staff of the Missouri Public Service Commission,	)	
Complainant,	)	
v.	)	
Southwestern Bell Telephone Company, a Missouri Corporation,	)	Case No. TC-93-224
and	)	
In the matter of Proposals to Establish An Alternate Regulation Plan for Southwestern Bell Telephone Company.	)	Case No. TO-93-192
Respondent.	)	

AFFIDAVIT OF ROBERT E. SCHALLENBERG

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

Robert E. Schallenberg, of lawful age, on his oath states: that he has participated in the preparation of the foregoing Rebuttal Testimony in question and answer form, consisting of 31 pages to be presented in the above case; that the answers in the foregoing Rebuttal Testimony were given by him; that he has knowledge of the matters set forth in such answers; and that such matters are true and correct to the best of his knowledge and belief.

Robert E. Schallenberg

Subscribed and sworn to before me this 3rd day of May, 1993.

Judy Fritsch
Notary Public

JUDY FRITSCH
NOTARY PUBLIC STATE OF MISSOURI
COLE COUNTY
MY COMMISSION EXP. AUG. 16, 1993

My Commission Expires: _____

Issue:	Policy - General
Exhibit No.:	
Witness:	Randall D. Barron
Sponsoring Party:	Southwestern Bell Tel. Co.
Type of Exhibit:	Supplemental
Company:	Southwestern Bell Tel. Co.
Case No.:	TR-83-253

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the Filing by Southwestern Bell Telephone Company of New Intrastate Tariffs, Rates, Tolls and Charges Applicable to Intrastate Telecommunication Service Furnished Within the State of Missouri.	)	Case No. TR-83-253

AFFIDAVIT OF RANDALL D. BARRON

STATE OF MISSOURI)
) SS
CITY OF ST. LOUIS)

Randall D. Barron, of lawful age, being duly sworn, deposes and states:

1. My name is Randall D. Barron. I am Vice President-Missouri for Southwestern Bell Telephone Company.

2. Attached hereto and made a part hereof for all purposes is my supplemental testimony consisting of pages 1 through 8, and eight schedules numbered and identified as (Barron) Schedule No. 1 through 8.

3. I hereby swear and affirm that my answers contained in the attached supplemental testimony to the questions therein propounded are true and correct to the best of my knowledge and belief.

Randall D Barron
Randall D. Barron

Subscribed and sworn to before me this 15th day of August, 1983.

Theresa R. Horn
Notary Public

THERESA R. HORN
NOTARY PUBLIC, STATE OF MISSOURI
MY COMMISSION EXPIRES 9/18/84
CITY OF ST. LOUIS

My commission expires: 9-18-84

SCHEDULE 1-1

Testimony of R. D. Barron

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is R. D. Barron, and my business address is 100 North Tucker Boulevard, St. Louis, Missouri 63101.

Q. BY WHOM ARE YOU EMPLOYED AND WHAT IS YOUR CURRENT POSITION?

A. I am employed by Southwestern Bell Telephone Company and hold the position of Vice President-Missouri.

Q. ARE YOU THE SAME RANDALL D. BARRON WHO PRE-FILED DIRECT TESTIMONY IN CASE NO. TR-83-253?

A. Yes, I am.

Q. MR. BARRON, WHAT IS THE PURPOSE OF YOUR SUPPLEMENTAL TESTIMONY?

A. The bulk of my originally filed direct testimony remains applicable. However, I wish to update the Commission on the status of our operations and service levels in Missouri as well as to comment on the changes that have occurred since my originally filed testimony. I also wish to add emphasis and information to what I originally filed on the subject of management efficiency.

Q. WHAT CHANGES ARE YOU RERERRING TO THAT HAVE OCCURRED SINCE YOUR ORIGINAL TESTIMONY WAS FILED?

A. There are three major changes I wish to mention. They are the FCC's issuance of its order on access charges in Docket No. 78-72, Judge

Greene's specifications of the terms of his acceptance of the Plan of Reorganization which DOJ and ATT accepted with only minor modifications and, closer to home, the agreement by the major parties in Case No. TR-83-253 on the use of a fully projected test year based on the 1984 budget.

Q. WHAT HAS BEEN THE EFFECT OF THESE CHANGES IN THE CONTEXT OF SOUTHWESTERN BELL'S CURRENT RATE CASE?

A. It is yet uncertain as to what the effects of the FCC decision in 78-72 will be, but as Mr. Caldwell points out in his supplemental testimony, the charges to be assessed the end-users for the recovery of NTS costs will be flat rate rather than usage sensitive, and the phase-in to full payment by the end-user was lengthened by one year. Nothing contained in the information we have received to date would indicate that the order changes much in the way of access charge structure, only rate levels. We have yet to receive a copy of the order so the exact effect is still unknown. The Company will have more to say about these matters as more information becomes known.

The main effect of the Court's acceptance of the Plan of Reorganization is that our company can now continue with its final planning and implementation of the terms of the MFJ with less uncertainty and doubt than we've had to date. This should make the entire planning and implementation process more efficient and effective over the next few months as we can now assume that no more last minute changes in assumptions and directions will occur.

Finally, the move toward a fully projected test year based on the Company's 1984 budget has caused much scrutiny and investigation to be

accorded our budgeting process. This has been beneficial to the company, and we've all learned from the experience. I'm extremely pleased that the Staff and Office of Public Counsel are willing to make this break from tradition, recognizing the truly monumental and unique impact divestiture will have on our operations. That they are willing to do what has to be done to protect the company and its ratepayers as the changes occur speaks well of their progressive attitudes and responsiveness to the Commission's challenge to not treat this case as business as usual.

Q. WOULD YOU PLEASE COMMENT ON THE CHANGED RATE OF RETURN REQUIREMENT IN THE COMPANY'S UPDATED CASE?

A. Mr. Kaufman explained in his July 29, 1983 supplemental testimony that the Company's cost of debt and equity have changed since our original application was filed. I will not elaborate on the specifics of our new return requirement, but I do feel it is necessary to highlight for the Commission that our required return on equity has risen 50 basis points since I filed my original testimony. We currently are asking for a 16.5% return on equity which creates an overall return requirement of 13.30%.

The same comments I made on page 12 of my direct testimony concerning our need to earn adequately as we launch into the post-divestiture environment continue to require emphasis. We absolutely must be earning adequately in the first few months of 1984 if we are to attract the investor dollars we will need to continue operations. I think the Staff and OPC realize this as is evidenced by their agreement on the use of a future test year.

Q. DO YOU HAVE UPDATED INFORMATION ON THE OPERATIONS AND SERVICE LEVELS IN MISSOURI?

A. Yes. Schedule Nos. 1 - 5 revise my previously filed Schedule Nos. 1 - 5 providing more current information. Schedule No. 1 provides an update of our operations for the period 1/1/83 - 6/30/83. Schedule No. 2 shows the service levels currently being provided our Missouri customers for the second quarter of this year. As can be seen, we continue to exceed all objectives with the exception of the percentage of repair service calls answered in twenty seconds. The 88.3% result on this item was still above the Commission's surveillance level but was certainly less than the level we wish to maintain. This result was due, in part, to the spring flooding that greatly increased the incoming call loads into our repair service centers. In addition, we experienced a computer hardware problem which made entering trouble report information into the computer a great deal more time-consuming. That had the effect of tying up our repair service attendants, detracting from their availability to answer incoming repair calls. The problem was resolved in early June as is evidenced by the 94.30% result achieved for that month.
Schedule No. 3 shows that we continue to clear our out-of-service trouble reports on an expedited basis well within the Commission guidelines. Our complaint levels as shown on Schedule No. 4 have increased slightly from last year mainly as a result of the abnormally severe weather we had in the spring, but we're still far below the levels experienced prior to 1982. Out TELSAM results (Schedule No. 5) continue to indicate our customers are very satisfied with the level of service they are receiving from the company.

SCHEDULE 1-5

Q. IS THE COMPANY'S PROGRAM TO CORRECT THE MAJOR DEFECTS FOUND IN THE COMMISSION'S LOCAL LOOP SURVEY AS A PART OF CASE NO. TR-82-199 NOW COMPLETE?

A. Yes, the final defects were corrected in May.

Q. YOU MENTIONED PROVIDING ADDITIONAL INFORMATION CONCERNING MANAGEMENT EFFICIENCY. PLEASE ELABORATE.

A. In my previous testimony I provided the Commission significant detail as to the efficient management of Southwestern Bell's Missouri operation. All that I said before still applies, but I want to take this opportunity to expand somewhat on what was previously said. The service levels at that time were excellent, and they continue to be so. The expense controls were evidenced in part by the 1982 reduction of 220 employees that I described. That trend is continuing. Since January 1, 1983 we have reduced an additional 434 employees. That does not include the employees transferred to ABI as a result of CI-II. Our Missouri monthly operating expense per line through May is 38.99 as compared to 42.20 for Southwestern Bell and 43.66 for the Bell System. The Missouri total factor productivity completely outstripped the national economy as I previously testified. Schedule No. 6 shows that our employees per 10,000 access lines are significantly lower than the Company or System. In an attempt to provide more definitive evidence as to the efficiency and quality of the management of the Missouri operation, I've requested members of my management team to summarize the programs, procedures, systems and other measures taken by the Company over the past several years to improve efficiency and productivity. I also asked them to list

the outputs of these efficiencies that had been introduced in the form of cost, service and productivity results for their areas of responsibility. The results of that effort are shown in my Schedule No. 7. The descriptions are intentionally brief and the lists are not all-inclusive but are merely intended to be representative of the efforts we've employed to control costs and improve service and productivity. I'm familiar with and will address questions relative to the information included in Schedule No. 7. However, if required, I will make my managers available to answer questions concerning areas that require further explanation.

As you can see this information is provided in six categories. The first category lists the mechanized systems that are being employed to reduce the need for labor and improve service levels. The second is a summary of the procedures and plans that allow us to better utilize our human resources. The third provides a listing of new technologies we've employed over the past several years. These technologies typify the innovation and creativeness of Bell System management. The fourth category lists procedures and operations systems utilized to reduce costs. Categories five and six show the departmental results in the areas of cost, productivity and service. I thought it would be enlightening to the Commission to get a more specific, in-depth look as to the degree we measure and scrutinize ourselves to insure that each department is providing the best service possible at the least cost. It is these types of measurements that our managers are held accountable for and ultimately paid for based on their achievement of preset objectives in these areas.

Q. DO YOU HAVE ANY OTHER COMMENTS ON ASPECTS OF THE COMPANY'S SUPPLEMENTAL FILING?

A. I only wish to comment on our Company's position on the increasingly visible issue of Universal Service. As many have stated before this Commission in the past and in the context of this case, the Company is dedicated to preserving the universality of its service. It is with that obligation in mind that we have proposed the Budget Local Measured Service (LMS) I described in my earlier testimony. And it is with that in mind that we have worked diligently towards making LMS available throughout Missouri as soon as possible as described in Mr. Caldwell's and Mr. Barry's testimony. And finally, it is with that in mind that we have developed the interim LMS option these gentlemen describe.
I still believe single-party flat rate service is a bargain even at our proposed rates as evidenced by my Schedule No. 8. But for those that either don't perceive it as a bargain or can't afford the new rates, I feel our Company has provided a viable safety net.

Q. MR. BARRON, DO YOU HAVE ANY CONCLUDING COMMENTS?

A. I can't emphasize enough that our Missouri work force is dedicated to providing the most economical, highest quality telephone service available anywhere in the world, both now and post-divestiture. The monumental task of Reorganization as a result of the court imposed divestiture is still barreling down the tracks on schedule for its January 1, 1984 time of arrival. Our employees have performed admirably under the confused and stressful situation we are in, and we've striven to minimize the impact of these changes on our customers. We will continue to shoulder that obligation and responsibility until the

severance is complete. It is my sincere hope that once we are divested, our Missouri operation will find itself with the opportunity to earn a Commission authorized return that will be adequate to meet our financial needs as we proceed into the uncertain and uncharted waters of 1984. It is hoped that the Commission has the conviction and the vision to make the tough decisions that are in the best interests of the long-term well being of our customers. If this is the case, I'm confident that our company will flourish and grow because it already has in place the most valuable asset any company can have - skilled, competent and effective management.

SOUTHWESTERN BELL

OPERATIONS IN MISSOURI

JANUARY - JUNE 1983

Number of customers served	1.5 million
Number of exchanges served	166
Number of access lines	1.8 million
Number of employees in work force	13,725
Plant investment per network access line	$1,683
Total operating expense	$414.6 million
Number of central offices	217
Number of toll centers	12
Number of operator units	26
Number of service operation centers	87
Vehicles in Missouri Plant	3,422
Average business day local calls	19.1 million
Average business day long distance calls	1.8 million
Total construction budget	$238.1 million

Southwestern Bell Telephone Company

Second Quarter, 1983

I. Installation of Service

A. Orders Completed Within Five Work Days

Objective	90.0%
Actual	93.49%

B. Percent Commitments Met

Objective	90.0%
Actual	98.0%

II. Regrade Orders Completed Within 30 Days

Objective	90.0%
Actual	100.0%

III. Held Orders

A. New Installations	264
B. Regrade Orders	1,665

IV. Service

A. Dial Tone Within Three Seconds

Objective	95.0%
Actual	99.93%

B. Local Call Completion

Objective	95.0%
Actual	99.9%

C. DDD Calls Completed - Incoming

Objective	97.0%
Actual	99.6%

D. Interoffice Trunking - Overflow

Objective	4.0%
Actual	0.08%

V. Answering Time

A. Automated Operator Calls

Objective	2.8 seconds
Actual	2.8 seconds

B. Repair Service - 20 Seconds

Objective	90.0%
Actual	88.3%

VI. Maintenance

A. Trouble Reports Per 100 Stations

Objective	8.5
Actual	3.87

B. Trouble Reports Cleared Within 24 Hours

Objective	85.0%
Actual	87.83%

C. Percent Trouble Commitments Met

Objective	90.0%
Actual	93.18%

SCHEDULE

Out of Service Cleared in 24 Hours

Surveillance Level 80.0%

Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
1979	N/A	N/A	59.1	53.6
1980	65.6	76.2	80.3	85.5
1981	90.6	87.5	82.8	88.1
1982	84.5	94.1	86.0	85.8
1983	87.4	87.8		

COMMISSION COMPLAINT SUMMARY

YEAR	HIGH	LOW	YEARLY TOTAL	MONTHLY AVERAGE
1979	329	163	2892	241
1980	272	116	2126	177
1981	202	101	1597	133
1982	120	70	1196	100
1983	123	103	676	113

(Thru 6-30-83)

1982 MONTHLY ACTUALS	RESIDENCE	BUSINESS	TOTAL
January	101	19	120
February	80	21	101
March	84	27	111
April	76	26	102
May	50	20	70
June	67	31	98
July	68	12	80
August	94	16	110
September	87	20	107
October	79	25	104
November	69	35	104
December	69	20	89
TOTAL	924	272	1196

1983 MONTHLY ACTUALS			
January	92	27	119
February	99	24	123
March	86	23	109
April	81	33	114
May	73	30	103
June	87	21	108
TOTAL	518	158	676

(Thru 6-30-83)

	BUSINESS			RESIDENCE				PUBLIC
OVERALL & SATISFIED	REPAIR	INSTALLATION	SERVICE CENTER	REPAIR	INSTALLATION	PHONE-CENTER	SERVICE CENTER	COIN SERVICE
1981 OBJECTIVE	84.0	89.0	87.0	84.5	92.5	93.5	91.0	85.0
Yearly Average	91.1	94.7	92.4	91.0	96.8	96.4	94.1	89.6
1982 OBJECTIVE		COMBINED 88.0		82.0	91.5	93.5	91.0	85.0
Yearly Average	92.1	95.3	94.0	92.7	95.3	95.6	94.9	91.3
1983 OBJECTIVE	*	*	*	82.0	90.0	**	91.0	***
January				93.3	90.8		94.8	
February				91.9	94.8		94.9	
March				93.8	94.4		94.6	
April				93.7	93.6		94.3	
May				92.6	95.2		94.2	
June				92.3	93.7		94.4	
July								
August								
September								
October								
November								
December								

*Business KSI Results no longer use Telsam as the source effective January 1, 1983.
**PhoneCenter KSI has been eliminated effective January 1, 1983.
***Public KSI Results no longer use Telsam as the source effective July 1, 1982. (Note: 1982 results reflect 6 months data.)

SCHEDULE 1-15

No. PSC Case No. TR-83-253
Schedule No. 5 (Barron)
Supplemental
Page 1 of 1

EMPLOYEES PER 10,000 ACCESS LINES

(as of May, 1983)

	DEC. 1979	DEC. 1980	DEC. 1981	DEC. 1982	JAN. 1983	MAY 1983
BELL SYSTEM AVERAGE	100.50	98.70	96.34	90.80	88.49	86.78
SOUTHWESTERN BELL	104.20	104.03	101.42	98.42	95.51	93.43
MISSOURI	92.76	89.64	86.42	84.73	82.19	79.55

STATE OF MISSOURI

MANAGEMENT EFFICIENCY

INDEX

I. INFORMATION AND OPERATIONS SYSTEMS

Department Network Distribution Services

- The Trouble Report Improvement Methodology (TRIM) was developed in Missouri beginning in 1979. TRIM is a systematic analytical approach using the Trouble Report Analysis and Evaluation Tool (TREAT) and Cable Repair Administration System (CRAS) computer systems to perform pattern analysis of outside plant facility, central office equipment, or individual customer problems. TRIM has been very successful in clearing trouble and prolonging the life of our plant.

- LMOS (Loop Maintenance Operations System) is a computerized trouble recording and tracking system implemented Missouri wide to make customer trouble reports instantly accessible for needed customer premise repair information, current trouble status, and history of past troubles. The status of each individual case of pending trouble as well as the total volume of trouble pending in an exchange or dispatch center can be displayed. This is an excellent management tool to monitor the repair load. The system also delivers customer reports within seconds to the correct geographical repair dispatch center. This system was brought on line in Missouri in the late 1970's. Periodic software and hardware additions continue to improve the system.

- Economic Alternative Selection For Outside Plant (EASOP) is a fully automated time-share economic study tool for outside plant engineering. It computes the Present Worth of Expenditures (PWE) for each alternative input by the user. Each alternative is a sequence of actions that indicate changes to the existing plant. These actions consist of installations, removals, rearrangements, maintenance and revenues.

- The Loop Plant Improvement Evaluator (LPIE) system is a fully automated time-share engineering planning and analysis system, which compares the current and projected maintenance costs associated with rehabilitation alternatives and/or redesign projects. It provides automated analysis and output identifying maintenance cost reductions versus capital expenditures required and indicates the most economical alternatives. This program insures that the most cost effective rehabilitation method is utilized.

- Pair Gain Planning (PGP) is a fully automated time-share engineering planning and analysis system. It provides the capability to analyze and define the most economical relief project alternative, based on the use of loop electronics versus cable/structure facilities without lengthy manual computations.

- The Loop Activity Tracking Information System (LATIS) is a computer based program to collect, analyze, and prioritize outside

plant loop network activities (e.g. instances of Line/Station Transfers, repair of defective cable pairs, etc.) by geographical areas. It communicates directly with the Loop Maintenance Operations System (LMOS), the Cable Repair Administration System (CRAS) and the Trouble Report Evaluation and Analysis System (TREAT) eliminating duplication of key punch operations. It provides a long term analysis of individual geographical areas, applies economical factors and economically prioritizes rehabilitation projects.

- Exchange Feeder Route Analysis Program (EFRAP) is a fully automated time-share engineering planning and analysis system that facilitates studies in an individual feeder route relief problem and identifies timing, economics and required cable/structure relief facilities. It provides for analysis and comparison of several relief alternatives to maximize economic benefits. It also relieves the engineer of the time consuming and tedious manual studies to analyze basic feeder route relief problems.

- The Loop Feeder Administration System (LFAS) is a fully automated time-share engineering planning and analysis system used to calculate the proper load-balancing of the feeder route and evaluate the economics of appropriate relief alternatives and specific timing.

- Digital Line Engineering Program (DILEP) is a fully automated time-share engineering planning and analysis system to improve the design and implementation of digital circuits required for digital loop electronics applications. It provides a faster, more economical and accurate design method while reducing actual engineering time required.

- The Mechanized Plant Location Records System (MPLRS) provides the facilities to control, administer and maintain the outside plant loop Plant Location Records. It also provides automated facilities for reconcilation of the continuing property records.

  Use of the MPLRS has resulted in:

  a. Faster and more efficient records posting and reproduction.
  b. Reduced cost for major updates.
  c. Improved inventory information acquisition.
  d. Uniformity of records.

- Premises Information System/Loop Assignment Center (PREMIS/LAC) mechanizes a portion of the functions currently performed manually in the Loop Assignment Center. This provides:

  a. More effective reuse of cable facilities.
  b. Elimination of manual entries in cable records.
  c. Downstream flow to other systems reducing manual update of records
  d. Mechanized worksheets to assist in major cable changes.
  e. More accurate information being passed to all work groups reducing discrepancy and phone call activity formerly used to resolve problems.
  f. Mechanized reports identify possible problem areas before the problem becomes serious.

  Implementation of PREMIS/LAC began in the fall of 1982 and will be completed by early next year.

- Three Tier Southwestern Order Retrieval and Distribution System (SORD) will enhance the existing SORD system and provide:

  a. Faster and more efficient distribution of service orders.
  b. Mechanized analysis of service order content which provides a selective distribution to only those work forces (e.g. installation, frame) involved in completing the service order.
  c. Provides downstream information to the mechanized installation Force Management System (FMS-N).
  d. Provides mechanized productivity reports for assignment personnel.
  e. Reduced cost of using U.S. mail or vendor, i.e., GELCO to distribute orders to various work groups
  f. Provides mechanized edits of assignment information which improves quality.
  g. A necessary system to our ultimate mechanization goals.

  Three Tier SORD will come on line in September, 1983.

- Mechanization of computing G.O. 59 results has drastically reduced the clerical hours required to produce the results and has reduced the possibility of clerical errors in computation. Prior to September 1981, the computation and publication of G.O. 59 results were manually performed, expending many clerical hours. In September 1981, computer programs were written for the Southwestern Time Share (STS) System that would mechanically compute G.O. 59 results, thereby eliminating the necessity of manually computing results for each wire center in the state.

- The Trouble Report Evaluation and Analysis Tool (TREAT) is a computerized system designed specifically to produce a wide variety of reports tailored to meet the analysis, results, and performance measurement requirements of the Repair Service Bureaus (RSB's). TREAT's two primary goals are to identify any weak spots in the

repair service operation and to facilitate the reduction of the trouble report rate. TREAT has negated the need for laborious, manual effort to identify commonality in trouble reports and detailed trend analysis. TREAT provides access to all trouble report data for a rolling 40 day period. Since its inception, TREAT has been utilized to identify weak spots and initiate corrective measures before a problem becomes serious. It has also been used to monitor the performance of I&M personnel for productivity lapses.

- The Cable Repair Administrative System (CRAS) is a computerized system for recording and maintaining a history of outside plant (cable) related troubles. This system, which also tracks repair hours on outside plant trouble, was fully implemented in Missouri in 1982/1983. CRAS has mechanized an extensive clerical process of marking tickets, reading of the tickets by an outside vendor and manual computation of some results. It is also used to measure the productivity of work groups and individual technicians. Reports are available to detail or summarize the trouble history of areas, specific cables, or portions of cables as well as for budgetary and forecasting purposes. To input data into the CRAS system existing Loop Maintenance Operations System (LMOS) terminals are used. This eliminated the need to purchase additional terminal devices.

- The Facility Assignment and Control System (FACS) implementation is scheduled to begin in Missouri February, 1984. This system will establish a new database called Loop Facility Assignment Control System (LFACS). This database along with existing systems (i.e., COSMOS, Three Tier SORD) will provide:

  a. Elimination of manual cable records.
  b. Automatic assignment and distribution of central office equipment and cable facilities for at least 70% of all service orders.
  c. Mechanized update of downstream systems, i.e., LMOS.
  d. Mechanized productivity reports for assignment personnel.
  e. Mechanized worksheets to assist in cable changes.
  f. Reduction of Loop Assignment Center offices.
  g. Anticipated force reduction in Loop Assignment Center Offices.

- A subscriber Loop Transmission Improvement Program was developed and implemented in Missouri. The program specifies that several transmission related measurements be performed on customer loops during all installation visits and some repair visits. If any measurement fails to meet minimum acceptable standards, immediate corrective action is required. A computerized system tracks and analyzes patterns of marginal conditions which do not require immediate action. These conditions are then corrected on a bulk basis.

Department Network Switching

- Automatic Data Test System (ADTS) is a computer controlled system to mechanize the data set and terminal testing needed to maintain data services on both switched and private lines.

- Automatic Message Accounting Record System (AMARS-X) is a centralized magnetic tape message recording system for 5XB switching systems replacing the paper tape systems. This sytem reduced recording cost, improved accuracy and eliminated the accounting procedure step of converting paper tape to magnetic tape for the billing process.

- Automatic Trouble Analysis System (ATA) is a minicomputer trouble analysis system for crossbar offices. This system mechanizes the analysis of the trouble recorder output for all crossbar offices and furnishes trouble patterns to the Electromechanical Switching Control Center for resolution. The ATA reduces manpower requirements, eliminates office covarage in some hours and improves service through faster trouble recognition.

- Automated Trouble Reporting System (ATRS) is a mechanized system that collects operator trouble reports from TSPS Base Units. The operator input is mechanized through keyboard input eliminating paper recording. The system does analysis of the trouble reports for patterns to improve response and eliminate most manual analysis.

- Centralized Automatic Reporting on Trunks (CAROT) - mechanizes the operational and transmission measurements on our interoffice and toll trunks. Routine tests are automatically scheduled, performed, analyzed and forwarded to the plant control location. This system has eliminated the requirement for manual two (2) person craft test for over 90% of our trunks.

- Centralized Automatic Trouble Locating and Analysis System (CATLAS) is a maintenance aid for No. 1ESS and TSPS. It is a shared time system that diagnoses machine data and lists the suspected failing components in priority order. It greatly reduces craft hours required for analysis and trouble shooting.

- Circuit Maintenance System - 1C (CMS-1C) is a mechanized system that provides operational, administrative, and data base services for personnel in the 4 ESS trouble maintenance environment. The system automates tasks such as: work distribution, circuit order administration, the generation of administrative reports, and records storage. It is a real-time users system.

- Circuit Maintenance System - 3A (CMS-3A) is a mechanized system that supports the Special Service Center activities associated with the installation and maintenance of special service circuits. CMS-3A reduces the cost of installing and maintaining special service circuits by providing accurate and readily available center records,

mechanized work flows within the SSC, and mechanized interfaces to TIRKS and SSS for automatically transferring information.

- Central Office Equipment Engineering System (COEES) is an interactive planning and ordering tool designed to assist engineers in planning and ordering the most economical central office switching job consistent with service requirements. It assists in determining the timing, cost and quantities of C.O. equipment required.

- Computerized Maintenance and Administration Support III (COMAS III) is a minicomputer system for performing ineffective-attempt analysis and marker testing for crossbar tandem switching systems. COMAS III reduces manual analysis and helps maintenance forces reduce ineffective-attempts and misdirected calls.

- Central Office Maintenance Management System - Preventive Maintenance (COMMS-PM) is a shared-time computer system that provides mechanized administration of preventative maintenance work in central offices and siwtching control centers. The system organizes the work for each administration unit and provides work orders for technicians. COMMS-PM greatly reduces the manual effort for administering central office maintenance.

- Computer System for Mainframe Operations (COSMOS) is a real-time system for wire center administration for subscriber services. It provides the following:

  a. Relieves the problem of frame congestion and long-jumpers often found in large main distributing frame operations.
  b. Improves load balance and customer line equipment distribution in the wire center.
  c. Reduces manual record keeping in each user group.
  d. Mechanizes line equipment list used for assignment.

- Centralized System for Analysis and Reporting (CSAR) is an on-line system which provides reporting of the quality and quantity of traffic data processes by TNDS.

- Common Update (CU) mechanizes the functions which build and maintain the record information required to support the data processes for the Total Network Data System.

- Demand and Facility Data Base System (D&FDBS) provides Network designers an information system for use in evaluating local C.O. equipment provisioning. This system reduces manual comparative analysis effort by designers.

- No. 1A Engineering and Administration Data Acquisition System (EADAS No. 1A) provides for the automatic collection of traffic data from switching system. EADAS No. 1A provides real-time data for

administration and stored data for Engineering purposes, and eliminates manual traffic registers readings.

- Engineering and Administration Data Acquisition System/Network Management (EADAS/NM) is a computerized system which provides real-time surveillance and control of all levels of the switching hierarchy -from regional centers to end offices. A Network Management Center support system minimizes office isolations from the Network this improving service quality.

- Individual Circuit Analysis (ICAN) is a shared-time system that supports the Total Network Data System. It provides analysis of individual circuit usage data identifying circuits not accessible and trunk equipment with short holding times. It provides summary information about the circuit grouping map and eliminates manual records.

- Load Balance System (LBS) is a shared-time system that produces the network administration reports required for the central office line equipment load balance function. LBS eliminates manual records and calculations for the function.

- Message Recording Trunk Trouble Analysis (MRTTA) provides daily exception reports to maintenance forces for detecting toll message recording problems.

- Network Engineering Force Management System (NE/FMS) is a shared-time system for determining engineering work volume requirements and tracking actual hours performance with that forecasted.

- Network Operations Trouble Information System (NOTIS) provides Network Service Centers the network trouble patterns and subsequent analysis for referral to maintenance forces for corrective action.

- Reuse Inventory Management System (RIMS) is an on-line shared-time system for the control, management, and reuse of operating companies inventory of surplus material.

- Remote Memory Administration System (RMAS) supports the operations of the Recent Change Memory Administrative Center which support our ESS local offices. The system:

    a. Mechanizes the clerical input function.
    b. Mechanizes the input to the ESS offices.
    c. Interfaces with the service order system for records update.

- Switched Access Remote Test System (SARTS) provides remote one person testing of special service circuits. SARTS allows remote detection and isolation of circuit problems eliminating the need for manual sectionalization of special circuit problems.

- Software Change Administration and Notification system (SCANS) is a shared-time system that administers the Broadcast Warning/Messages announcing changes required in ESS software to prevent outages and customer complaints. The system tracks the status of changes in each office eliminating manual record requirements.

- No. 2 Switching Control Center System (SCCS No. 2) is a minicomputer system which supports the ESS Switching Control Centers. It provides:

  a. Remote centralized maintenance capability.
  b. Remote monitoring of end office machine status.
  c. Support for Network Administration Centers and Network Terminal Equipment Centers.

- Service Evaluation System No. 2 (SES No. 2) automates the dial line and Incoming Trunk Service Evaluation functions. SES No. 2 allows further centralization of the observing function, reduces manpower requirements and automates the interface with other systems using observed data.

- Small Office Network Data System (SONDS) is a subsystem of the Total Network Data System. It automates the data collection, processing and output reports for Step-by-Step offices smaller than 5,000 main stations.

- Special Service System (SSS) is a mechanized system for storing historical data and analyzing trouble report data for special service customers.

- Telecommunications Alarm Surveillance and Control System (TASC) is an automated system that provides centralized alarm reporting, status surveillance and remote control to permit unattended operations of telephone buildings containing radio and carrier transmission equipment; switching equipment; and associated building, power and miscellaneous equipment.

- T-Carrier Administration System (TCAS) mechanizes the maintenance and administration to allow centralized control of the digital network. Provides real-time surveillance and analysis of T-Carrier failures, trouble isolation to a faulty channel bank or span and provides reports on current status and performance of the digital network.

- Traffic Data Administration System (TDAS) provides mechanized administration of traffic data collection. TDAS automatically adjust the data to true CCS and identifies measurements in terms of common language.

- Total Network Data System (TNDS) is a mechanized system for validating, processing and managing traffic data for the telephone network.

- No. 5 Crossbar Central Office Equipment Reports (5XB COER) supports the network administration and design functions for 5XB switching offices. The system eliminates manual traffic studies for these functions.

- Frame Monitoring and Planning System (FRAME MAPS) is a mechanized system that facilitates distribution frame planning. It provides:

  a. Consistent termination profiles for the wire center under study.
  b. Develops several standard alternative plans.
  c. Performs economic evaluations.

- Construction Budget Summary and Analysis (CBS&A) program processes the company's construction budget data through a series of edits that ensure the integrity of the information. It is utilized as a tool by the design engineering group to evaluate the reasonableness of their design data.

- Trunk Forecasting System (TFS) is designed to produce forecasts of message trunk requirements for five future years. The system has mechanized this function for the circuit assignment group.

- Trunk Servicing System (TSS) helps network trunk servicing personnel to maintain a message-trunk network meeting both service and economic criteria. It mechanizes the major portion of the data gathering and calculations required for this function.

- Trunks Integrated Records Keeping System (TIRKS) is a mechanized system used for designing, tracking, distributing and assigning facilities and equipment to message and special service circuits. The system mechanizes the records for trunks and special service circuits. It mechanizes the design process on some circuits. It mechanizes the work document distribution for provisioning special circuits.

Department Network Planning

- Outstate Facility Network Planning System (OFNPS) is an interactive time share computer-based system designed to assist the planner in creating and evaluating facility relief plans for non-metropolitan sites. OFNPS can generate an optional relief plan, calculate facility exhaust dates and generate facility cross-section reports.

- Metropolitan Area Transmission Facility Analysis Program (MATFAP) is a system of computer programs to aid in planning the economic evolution of metropolitan area interoffice transmission facility networks. It is intended for an environment where growth is predominantly on digital carrier and metallic facilities. MATFAP

allows the planner to develop a fundamental plan for the network as a whole rather than the historical procedure of studying a span at a time.

Department Operator Services

- Hotel Billing Information System/ Centralized Credit and Refund System (HOBIS/CCRS) assists the operators in quoting, storing, retrieving and adjusting "time-and-charge" details for hotel and non-hotels equipped with Automatic Charge Quotation Service. Savings were realized through improved accuracy on recording time-and-charge information. HOBIS/CCRS also supports the application of credit for customers as a result of coin service difficulties. CCRS offered improved operator work time in processing credit requests and eliminated the purchase and processing mark sense tickets. Future plans include support for non-coin service and provision of a Network Autoquote Service (NAQ). The new feature of NAQ will reduce investment by eliminating the need for private line facilities with the use of the automatic dial-up feature.

- The Directory Assistance System/Computer (DAS/C) utilizes computers to mechanize the handling of Directory Assistance calls. The DAS/C computer replaces paper records which were printed by an outside vendor and put in book form. Instead of turning pages of a book, the operator keys the calling details on a keyboard and the listings are displayed on a screen. The use of the DAS/C resulted in a significant reduction in the time required by the operator to handle customer requests and in turn a large force and expense savings. In order to realize further savings, various remote Directory Assistance offices in Missouri are now consolidated in St. Louis and Kansas City.

- The Data Base Administration System (DBAS) is a minicomputer system used to administer the Billing Validation Application (BVA) data base in conjunction with providing automated Calling Card Service (aCCS). Billing number data contained in the DBAS data base includes Originating Station Treatment (OST), Billed Number Screening (BNS) and calling card information for both Southwestern Bell Telephone Company and 106 independent telephone companies in the North Region, i.e., Missouri, Arkansas, Kansas and Oklahoma. This system is accessed by TSPS and validates calling card calls, makes equipment queries to determine if a station is capable of participating in aCCS and also provides the ability to restrict third party billing and/or collect calls to coin and selected non-coin telephone numbers.

The DBAS system is administered by an Operator Services work group called the Data Base Administration Center (DBAC) which is responsible for the daily input of source data which includes magnetic tapes from Southwestern Bell and manually input service orders from the independent companies.

- The Micro/Tel Traffic Data Analyzer (MTDA) provides operations support for the Operator Services TSPS systems. The MTDA substantially reduces the paper record posting, arithmetic calculations and manual program inputs to time-share computers being performed at Operator Services Systems Central Administration Group (CAG) centers. It also provides more accurate and timely information for force and facilities administration.

- STATPAK is an Operator Services support system implemented for the measurement and reporting of operator productivity. It provides a more objective and statistically sound set of measurements upon which operator performance evaluations can be based. STATPAK relieves operator management of the task of manually measuring operator productivity for performance evaluations.

- The Organization Design Program (ODP) is a computerized program developed to provide a standard method for Operator Services personnel to more efficiently design/size a TSPS or ACD system or review the existing configuration of an on-line system. The ODP reduced personnel time spent performing calculations manually.

- The Force Management System-II (FMS II) is designed to eliminate much of the manual recording, reporting, and transferring of information required in the daily operation of the Operator Services Center and the Operator Service Force Management Center. Those tasks that are most cumbersome to perform manually can be performed through data entry with real-time application using a mini-computer. Once entered the data is captured and can be manipulated to meet the needs of the District.

- The Force Reporting and Planning System (FRPS) is a group of computer programs which work in conjunction with the FMS. It collects a variety of data and provides a means for using past actual data to develop force plans and budgets.

Both the FMS and FRPS programs have been instrumental in reducing clerical time spent and improved accuracy in accomplishing tasks which were performed manually in the past.

Department Centralized Services

- The Material Management Inventory Information System (MIIS) is a user interactive mechanized system designed to economically control field stock replenishment. The system uses an economic order quantity model and a statistically determined reorder point in making replenishment decisons, and it will provide for activity recording and file maintenance to the extent necessary to support this mechanization. MIIS performs activity recording, stock control, procurement, order processing, receiving verification, file maintenance and reporting. It has enabled Missouri to reduce the field investment in material and supplies and to control the investment which must be maintained.

- The Plug-In Inventory Control System (PICS/DCPR) for central offices provides both methods and procedures for monitoring and controlling the acquisition and the movement of central office plug-in equipment. In addition, a continuing property record of all central office equipment is also provided. A similar system for PBX plug-in equipment also exists for monitoring and controlling the acquisition and the movement of PBX plug-in equipment. This system is resulting in a more efficient use of plug-ins and a reduction in investment.

- Supply Delivery Control - A mechanized system was developed to track special deliveries (hot shots) from a central supply location in metro St. Louis to the user groups. The system provides data with which management can more efficiently administer local supply deliveries.

- The Centralized Inventory Management System (CIMS) provides a mechanized system for tracking the usage and controlling the field inventory of more expensive terminal equipment such as teletypewriters, data sets, etc. CIMS has provided management with the means to more effectively manage the investment in teletype and data equipment.

- Tool Inventory Control - Missouri developed a mechanized system which tracks major tool purchases made by user groups. The system has allowed close monitoring and control of the major tool budget.

- A mechanized Ordering and Invoicing Plan (OIP) which interfaces with a mechanized Western Electric System provides efficiencies in the ordering and invoicing of material and supplies obtained from Western Electric. The system reduced the need for telephone company human resources at the Western Electric Service Center and it provided more prompt and accurate billing from Western Electric.

- The Centralized Results System (CRS) allows for mechanized retrieval and graphic display of key financial and service results.

This system aids management in analyzing results data in an efficient and accurate manner.

- The Mechanized Force Report (MFR) provides the official company force count. The MFR also provides management with an efficient tool for controlling, analyzing and tracking the status of actual employees against the budgeted force.

- The Corporate Budget and Planning System (CBAPS) provides expanded capabilities in budget preparation and data analysis.

- Management Reports/Integrated Budget Planning System (MR/IBPS) provides on-line mechanized tracking of financial data and insures proper charging to the appropriate departments via detailed cross-charging report capabilities.

- The Motor Vehicle Information Management System (MOVIMS) is a data base oriented package of computer programs designed to provide telephone company managers with the information needed to control and categorize motor vehicle costs. A MOVIMS data base contains information about motor vehicles such as license numbers, vehicle types, serial number, fuel consumption, and repair costs arranged in various repair categories. In addition to providing a tool for the control of expenses, MOVIMS will assist in controlling capital expenditures by providing the entire maintenance history of a particular vehicle.

Department Business, Residence and Public Services

- Pre-Billing and Order Support System (PreBOSS) provides efficient mechanized support for BSC, RSC and PSC operations. It eliminates the need for paper and microfiche records through the implementation of an on-line data base of customer account information. The system allows service representatives to respond more quickly and thoroughly to customer inquiries and requests. With PreBOSS, all offices in the state have access to all customer records.

- Premises Information System (PREMIS) is the initial component of a totally mechanized system to assign and route service orders. PREMIS incorporates the Street Address Guide (SAG) file to provide information about facility restrictions and existing or previous customers at any specific address. This information supports the service representative by providing address verification, information to determine commitment dates, and available telephone numbers for assignment, and information to aid in preventing repetitive bad debt.

  Before PREMIS was on-line, each service representative was provided with a printed Street Address Guide. Annual production costs totalling over $20,000 have been saved. PREMIS utilizes

existing PreBOSS terminals, so there is no additional terminal expense.

- Southwestern Order Retrieval and Distribution System (SORD) is comprised of a family of sub-systems designed to facilitate on-line distribution, storage and retrieval of customer service orders. SORD replaced a variety of processing methods, including telephone and manual transmission. SORD enables service order writers to enter a service order into the system, distribute copies to all appropriate work groups, store the pending order in a file available for possible changes, and then retrieve the order to add completion information. The SORD completion network is then used to update other systems for billing purposes, directory production and repair service.

  SORD has experienced several enhancements through the years, including SORD/Minimal Input, which shortens the service order typing procedures, and SORD/IMS which reduces the number of transactions required to produce a service order.

- Mechanized Out of Service Adjustments (MOOSA) provides automatic adjustments (up to $10.00) to customers whose service is out of order for the length of time specified in the company's tariff. When the out of service condition meets the criteria for a company initiated adjustment, the repair service bureau (RSB) inputs the data into the Loop Maintenance Operations Systems (LMOS). The information is then passed to CRB/CRIS for application of the credit to the customer's account.

- Temporary Usage Measurement (TUM) is a process that records the details of all of a customer's outgoing calls automatically. We offer TUM at no charge to assist customers in making an educated decision as to whether standard measured service would be cost effective for them.

- Coin Phone Operational and Informational Network (COIN) provides the coin collection center with mechanized planning, controlling and directing of the coin collection and counting forces. This system provides improved productivity by reducing collection intervals and improving coin customer service. This system has reduced our collector requirements in the past 5 years from 18 employees to 13 employees in the St. Louis Collection Center. Comparable reductions were also achieved in the Kansas City Coin Center.

- Coin Telephone Operations Center Subsystem (COTCS) is an on-line interactive subsystem of the COIN database that provides management with information on security, counting, record and sales office functions. This sytem provides, heretofore, unavailable information to management for improved decision making and revenue generation programs.

- Public Telephone Installation and Maintenance Centers (PTIMC) located in St. Louis and Kansas City have centralized all maintenance and installation activities related to coin service in

Missouri. These centers have improved operating efficiency by: conducting pre-installation field surveys to identify and remove roadblocks, improving maintenance efficiency by MAP-BASED dispatch, reducing customer reports by increased emphasis on employee reports, instituting a regular program of preventive maintenance (coin patrol) and by proper use of bulk loading. The PTIMC has improved overall efficiency by minimizing paper work and maximizing mechanization of operations.

- Public Service Center (PSC) provides the interface for all requests related to public communication services (COIN) in the state. One of the primary goals of the PSC is to support the field sales personnel to allow increased dedication to company initiated sales and more profitable scheduled sales contacts.

Department Business Sales

- Prior to the consolidation of marketing data bases into the centralized internally processed Corporate Marketing System (CMS), marketing information applications existed in a disaggregated combination of area data centers and outside vendors. By moving these jobs into one system, a substantial increase in operating capacities was realized along with a major decrease in cost.

- Rapid Access Management Information System (RAMIS) - Included in the CMS consolidation process was the decision to install a user-friendly data base reporting language, RAMIS. RAMIS has allowed programmers as well as less technical users to have quick access to data never before available in short time frames.

- Marketing Information Analysis System (MIAS) is an on-line data base providing bill-level customer information. Reports from this data base are used by staff and field sales personnel to analyze the marketplace and increase sales.

- Long Distance Usage Analysis (LDUA) is a batch oriented system that summarizes customer long distance usage data in order to determine potential WATS sales. Several man-weeks of time would be required to perform this function manually. These reports lead to increased WATS sales and long distance cost savings to customers.

- Customer Recognition Process (CRP) provides a mechanized means of matching service orders to existing bills for the purpose of assigning marketing codes to the service orders to facilitate further marketing analysis. CRP is operated by 8 clerks and 1 supervisor. Prior to CRP, the function was totally manual and required 20 clerks and 2 supervisors.

- Restructured Private Line Tracking System (RPLTS) provided the first mechanized inventory of private line detail. Prior to this, the job was time and cost prohibitive.

- Quota Measurement System (QMS) provides an efficient process of assigning customer bills to specific sales modules and then tracking the performance of those modules. Over one million bills are processed by QMS.

- Based on the results tracked by QMS, compensation/motivation systems convert percent attainment of objectives into payroll dollars or non-cash award credits. By mechanizing this process, strict payroll deadlines are met and calculation errors are eliminated.

- Rate Impact Analysis System (RIAS) calculates the effect of rate changes on the sales modules to determine if quota adjustments are required. This ensures that sales objectives do not receive undue credit from an increase in product prices.

- Sales Operations Management Information System (SOMIS) assists in sales force management and is used to track selling versus non-selling time spent by the field sales force. Utilizing simple time sheets and an on-line prompter and report generator, manual time reports have been eliminated.

- Personnel Data Base (PDB) is used to track and report personnel information on all marketing employees. Data can be obtained from this system in order to quickly answer various personnel questions and efficiently produce personnel reports.

- Southwestern Immediate Product Action System (SW-IMPACTS) provides a tracking mechanism for selected products, showing in-service quantities as well as inward and outward movement. This provides assessment information for product management and field sales programs.

- Several Sales Aids Programs have been established and processed on internal and AT&T computer systems to provide field sales forces with assistance in their daily activities. These systems quickly and accurately perform functions that would otherwise require manual research, calculations, and reports. These systems include:

    a. Scientific WATS Analysis Techniques (SWAT). This system is used to analyze summarized customer toll usage data and provide WATS cost and configuration combinations.

    b. Network Response Time and Configuration Evaluation (NERCE). NERCE is used to review customer traffic volume, busy hour characteristics, location, etc., which can subsequently be used to recommend a variety of network configurations to be used with private line facilities for Dataspeed 40 terminal arrangements.

c. Marketing, Engineering and Business Services (MEBS). MEBS provides price estimates and engineering requirements for Dimension and Horizon products.

d. Computerized Proposals (COMPRO). COMPRO is used to calculate quick quote prices and cashflow analyses on products other than Dimension and Horizon.

e. Computerized Sales Reference System (CSRS). CSRS provides a ready reference to product/service technical information as well as nationwide rates.

- Following are major Marketing information publications which have been implemented to enhance field sales efforts:

a. Market Leader. This publication is designed to disseminate marketing information at the least possible cost to the sales force. It provides up-to-date marketing strategy, recognition, results and sales application information. By publicizing this material, the company can leverage sales applications quickly and ensure that the entire sales force is motivated and unified in its direction and efforts.

b. Product Notes. This publication is produced on an as-needed basis to provide product- and service- specific information for the sales force. As such, it provides timely notification to sales personnel of changes in the product line and/or implementation of products and services. It eliminates the need for numerous smaller publications or correspondence specific to certain products/services or functions.

c. Interdepartmental Implementation Guides. These guides replace the guides which were issued individually for each department or discipline in the past. By integrating the implementation guide, sales personnel have a better understanding of the information required of them for various products and services implementation and the interdepartmental use of that information. It has increased interdepartmental cooperation in the provision of products and services.

d. Sales Operations Service Procedures (SOSP). This is a consolidation of Marketing Administrative Practices and has saved considerable time for sales personnel by collecting administrative implementation material in a single reference and eliminating a number of other documents.

- A mechanized Locator Directory of Business Sales personnel in the five states has been implemented. It enables holders to contact directly a specific employee regarding complaints or to contact the district head for operational matters thereby saving time and reducing expenses.

Department Directory

- The Automated Directory System/Graphics (ADS/Graphics) computer system provides a method for creating customer advertisements for print in a Yellow Pages directory. This mechanized method can be used to create individual ads or entire page negatives.

- Automated Directory System/Sales (ADS/Sales) is the sale counterpart to publishing's ADS/Graphics. It is designed to replace three computerized systems that currently provide Yellow Pages reports relating to advertising revenues, sales commissions, revenue analysis and projections, and personnel evaluation. When fully on line, ADS/Sales will greatly reduce clerical error in sales handling.

- Ad Locator provides the method for tracking ad copy sheets as they are processed through the ADS/Graphics center.

- DIRectory ProjECT (DIR/ECT) is the state of the art, computer-based system designed to automate the operations necessary to the production of the White Pages and other products containing lists of telephone numbers.

- Directory Management Information System (DMIS) is the management information system that provides market and demographic information to management in sales planning.

- Directory Scoping Analysis Program (DSAP) is designed to assist management in determining the optimum scope of directory areas. It analyzes actual point-to-point calling patterns and shopping-habits data to identify communities of calling interests.

- Directory Sales Compensation Program (DSCP) is a management system designed to evaluate individual and comparative sales performance.

- Foreign Directory Charging System is designed to store a complete list of all standing orders for foreign directories.

- Mechanized Sales Assignment (MSA) is a computer-driven method of providing to directory representatives an equitable assignment of customer accounts.

- Mechanized Independent Company Input is used to reformat Independent telephone company listing data and to create a SWB service order file.

- National Yellow Pages Services Accounts/Receivable System (NARS) is a fully mechanized billing system for the national advertising accounts of authorized NYPS selling representatives in 470 directories.

- NYPS Invoice Receiving System (NIRS) mechanically receives, edits, formats, and recycles orders from NYPS authorized selling representatives into a master file.

- Yellow Pages Accounts Control System (YPACS) is the bedrock mechanized system that builds, stores, maintains and updates all Yellow Pages accounts, and drives billing, photocomposition, and MSA.

- Yellow Pages Guide System (YPGS) provides an inventory system of headings, guide captions, indexes, and cross-references used by Bell publishers.

- Yellow Pages Sales System (YPSS) builds and maintains data files used to generate directory advertising statistics and to drive a payroll system for salaries and commissions.

Department Comptrollers

- The Centralized Remittance Processing System (CRPS) was implemented to expedite handling of customer payments and to allow for same day bank deposits. This system provides faster access to revenues and gives us the ability to update customer accounts the same the payment is received.

- A new mechanized Customer Records Information System (CRIS) was implemented. In addition to providing a totally updated daily customer record, the introduction of the CRIS system enabled other real time systems with advanced processing capabilities to be installed.

- A major enhancement to the mechanized Toll Message System called Bill-All Toll was implemented. This feature allowed for more current billing of long distance messages, thus improving the timeliness of revenue billing.

- A mechanized procedure (Previous Bill) was implemented that allows for the expedited sample auditing of customer bills before they are mailed. The results have been improved bill accuracy, and streamlined audit procedures.

- Phase I of the Mechanized Toll Error Correction System (MTEC) was implemented. This online inquiry system provides needed information on a more timely basis and has eliminated the time-consuming use of microfiche records.

- A mechanized installment billing program for direct sale of telephone sets was implemented resulting in the elimination of one full clerical position.

- A mechanized Independent Company WATS Settlement program which mechanically calculates WATS settlements for average schedule companies was implemented.

- Recommended enhancements to Rate Change programs were implemented for OC&C verification and service order processing. These changes resulted in reduced report volumes, improved procedures, and more timely receipt of data by the business offices.

- The conversion to Bell System Disk Oriented Property and Cost System (BSDOPAC) further mechanized the updating of cost transactions to the appropriate records and files, the issuance of various reports, and maintenance of property and cost records.

- The Plant Labor Analysis Network (PLAN) was utilized for mechanized payroll time and labor distribution.

- A new mechanized procedure for Outside Plant Reconciliation was implemented which compares Comptrollers property records to the Network Plant location records.

- Computer Assisted Data Entry (CADE) is a mini computer system that mechanized keypunch work.

- The Western Elecric Interface Process System (WIP) mechanized the accounts payable system for handling Western Electric purchases.

- The Ledger and Journal Maintenance System (LAJMS) providing mechanized journals, cross checks, and ledgers for each State and the Company.

- The BSDOPAC System was enhanced with Disbursement Office Processing Entity Code (DOPEC) which eliminated duplicate journal balancing by combining divisions into higher level processing entities.

- The Cost Distribution Module (CDM) was installed to mechanize labor and overhead rate calculations and provide more accurate holding account clearances.

- The Exception Report Processor System (ERP) was implemented which mechanized the scheduling and time reporting for Operator Services.

- SWAPS On-Line (Southwestern Accounts Payable System) was introduced. This is a mechanized expense voucher entry system featuring front end editing and the ability to produce bill payment drafts.

- The Southwestern Mechanized Time Reporting System (SWMTR) was implemented which mechanized the payroll time reporting of all departments not inlcuded in the PLAN System.

- The Western Electric Deferred Tax Spread was mechanized. This program determines the allocation of Western Electric Deferred Tax to the appropriate capital account.

- Converted to the DOPAC Online Entry System (DOES) which provided on-line error correction capabilities to the BSDOPAC System. Advantages include immediate feedback on correction activity and reduced time to input corrections.

- Mechanized procedures were introduced to handle Employee Relocation Expense (ERE) data, for tax purposes.

- Western Electric billing accuracy was improved by implementing the Billing Verification System. This system allows us to match 100% of the bills and receipts from Western Electric to verify the billing data.

- The LAJMS Online Entry System (LOES) was implemented allowing Comptrollers to enter and edit journal activity outside of the normal batch processing during critical end-of-the month time frames.

- The conversion of the Southwestern Facilities Administration Control and Tracking System (SWFACTS) provided an in house on-line inventory system for furniture and office equipment.

- Implementation of the Southwestern Personnel Administrative Network system (SPAN) further mechanized payroll activity and allows the online updating for payroll change records and service records.

- Implementation of the Tool Online Entry System (TOES) which eliminated keypunch work in the processing of the tool inventory.

- A mechanized program was introduced to adapt Sperry Univac output tapes to COM format, thus avoiding the need for an outside microfiche vendor.

- Introduction of a new program to adapt Address Purification and Conversion System (APACS) data to a format compatible with TTRAN eliminated the need for an air express courier.

- A mechanized tape control system was developed which resulted in a reduction of program abends, thus saving several thousand dollars in rerun expense.

- Implementation of a mechanized hardware Billing Control System (BCS) enables Comptrollers to verify costs/bills by individual device.

- The Mechanized Real-Time Tracking System (MRTS) was implemented. This system, through the use of a direct access history file for recording and producing reports on the availability and performance of each real time service, virtually eliminates the time involved in manual tracking methods.

- The GTE Rate of Return program was implemented which includes current contractual adjustments for exclusion of ENFIA and MOBILE

operations and calculates an adjustment for the effect of FROZEN SPF on telephone operations for GTE monthly settlements.

- The billing procedure for Illinois Foreign Exchange (FX) customers was mechanized. The report includes customer name, address, phone number or circuit number and the billing charge for each and calculates a total FX billing amount.

- Mechanized the annual rate of return for settlement purposes with the independent telephone companies on an annual toll cost study period. It incorporates the exclusion of ENFIA and MOBILE investment and expenses, and the calculation for FROZEN SPF.

- The rate base, income summary, revenue requirement, schedule 1, separation factors, cash working capital and the expense adjustment worksheets have been mechanized and linked together to make changes with minimal manual work. This automates all the manual summary sheets used in rate cases.

- A model has been mechanized to calculate the revenue requirment for rate case filings. It also calculates the interest expense, cash working capital, federal and state income taxes and independent company gross-up for settlements included in the filing amount.

- The Network Data Base System was implemented which maintains circuit inventory and trouble report history for Comptrollers' Network Control Center groups.

- Implementation of the Tape Management System (TMS), a software package which automatically tracks magnetic tape activity, eliminated clerical/manual intervention.

- Implementation of Scientific Management System (SMS), a hardware/software package which automatically flashes tape mounts via display, reduced significantly the steps a tape mounter must take between CRT, tape library, etc.

- Southwestern Sysout Option (SSO), a locally written program which allows perusal of job and system printouts, via disk, by Data Center personnel was implemented. The number of additional printers anticipated for future growth was completely eliminated; in addition, existing printers were reduced.

- Implementation of UCC7, a software product which automatically schedules, starts, and tracks job/application work flow reduced the need for ACO's (Application Console Attendant).

- Implementation of Superconsole, a software product which automatically filters and directs system activity messages from multiple systems to one (1) CRT terminal has reduced the need for MCO's (Master Console Operator).

- Mechanized Trouble Log Reporting System (MTLR) is a locally written software package that aids in tracking hardware problems and provides a reference for subsequent discussions with the various vendors.

- The Investment and Cost Information System-Functional Accounting (ICIS/FA) was implemented which provides detailed cost data for use in making decisions concerning the best utilization of company resources, the cost of providing various products, etc.

- A mechanized program was implemented that produces the Company's state sales tax return each month, resulting in significant manual manhours savings.

- Implementation of Corporate Account Reports System (CARS) mechanized all financial and most administrative reports produced on a state level. This resulted in a reduction of 2 clerical employees.

- Interstate Information System (ISIS) was implemented. This system mechanically calculates and produces the monthly interstate revenue settlement amounts, resulting in a significant savings of clerical time.

- Implementation of mechanized procedures for computing State exchange and toll rates of return has saved significant clerical effort.

- Mechanized gross receipts tax calculations were implemented.

- Implemented use of mechanized START PROC procedure to put DEXAN/FA and LAJMS print punch tapes from Kansas City to existing MSS.

- By mechanizing the production of mailing labels for reports, we reduced clerical hours.

- The Routine Order Tracking System (ROTS) was implemented which resulted in a reduction of open Routine Orders thus saving clerical time.

- The use of a mechanized report C238 was implemented within the Customer Record Information Systems (CRIS) system to produce reports formerly prepared manually.

- An automatic logging system for program updates was developed which eliminated much clerical time for manual logging.

- Mechanization of the correction and processing of QP711 SMF statistics resulted in a savings of clerical time and the expense of cards for manual work.

- Mechanization of the preparation of various labor reports reduced one clerical position.

- Establishment of a Major Medical file on TSO eliminated the need for key entry and other clerical work.

- Mechanization of the destination addresses of turnaround PCRs (Payroll Change Reports) and PCLs (Payroll Change Lists) eliminated clerical time required to hand-address envelopes.

- A mechanized Interim MR21A report was implemented to provide construction expense information to the Network department at a lower level of detail.

- Implementation of the Customer Record Information Systems/BMP (CRIS/BMP) process allowed Southwestern Order Retrieval and Distribution system (SORD) and CRIS to access the same Customer Data Bases.

- The STACKER series of programs for use in the Data Center was implemented resulting in reduced tape purchases.

- The Automatic Message Accounting Recording Center (AMARC conversion reduced force by two clerks and eliminated two IBM7273 paper tape converters and monthly maintenance.

- The Mechanization of Out-of-Service Adjustments (MOOSA) conversion resulted in the elimination of one clerk.

- Clerical intervention and re-entry of Private Line service orders was eliminated by mechanizing statistics for the CRB system.

- Implementation of a data base space utilization program eliminated the need to reorganize two TIRKS data bases nightly.

Department Comptrollers - Security and Claims

- The Claims Office has developed and implemented a mechanized Risk Management Information System. This system tracks the source, location, frequency, and severity of damage claims, including claims by the Company against other, and by the public against the Company. With this system, the Claims Office can:

  a. Identify situations which increase the probability of claims occurring
  b. Track the cost of damage
  c. Monitor and schedule the process of collecting bills for damage done to Company property

d. Assess the effectiveness of loss prevention efforts

- The Bell System Administrative Network Communications System (BANCS) provides the capability of accessing multiple computerized administrative programs from a single terminal. This capability has reduced cost, errors, the number of terminals, the number of personnel, the time and the paper work necessary to perform the security function of protecting company assets and revenues. The programs described below are currently accessible by Security, through BANCS.

  a. Pre-BOSS (Business Office Support System)
  b. SORD (Service Order Retrieval and Distribution)
  c. PREMIS (Premises Information System)
  d. LMOS (Loop Maintenance Operations System)
  e. MTECS (Mechanized Toll Error Correction System)

- Signal Irregularity (SIGR & SIGI) computerized applications, described below, provide the capability for detecting the use of electronic toll fraud devices (e.g. Blue Boxes) and unauthorized calling card numbers. The system also has the capability of preventing unauthorized calling card usage by "locking out" bogus attempts. These capabilities have proven successful deterrents to toll fraud activity and have led to the arrest and conviction of offenders. Monitoring at the security office provides immediate response to abuses.

  a. SIGR is a sub-system of the computerized Traffic Service Position System (TSPS) and detects signal irregularities originating from Hotels/Motels and public telephones.
  b. SIGI is a sub-system of the Electronic Switching System (ESS) and detects signal irregularities originating from residence and business telephones. It is employed in most #1 ESS offices in metropolitan areas of the state.

- Billed Number Screening (BNS) provides the capability of preventing third number or collect billed calls to a particular telephone number. All public telephones are programmed to prevent such activity. Individual customers are provided the service at their request. This capability has proven a successful toll fraud deterrent and has increased customer satisfaction.

- Employee and Public Relations Programs:

  a. Security education and motivation training is routinely conducted to increase employee awareness of their responsibilities for protection of company assets and revenues.
  b. Security alert flyers are periodically distributed to alert employees to specific situations which could result in them becoming victims of circumstance detrimental to them, the consumer and the company.

c. Security procedures and protection of property and facilities to better control loss and theft have been strengthened by an improved security inspection program.

d. Public talks with special interest groups have proven beneficial in reducing toll fraud activity and increasing public awareness of how these abuses impact everyone.

Department Revenues and Public Affairs

- The Capital Investment Model (CIM) mechanizes the capital accounting procedures to calculate expense and tax quantities under a wide range of conditions. When provided with information on investment and plant characteristics, together with assumptions for future financial, economic, and regulatory conditions, the model may be used for studies of revenue requirements, internally generated funds, financing, engineering economy tariff support, and marketing strategies. CIM can also be used for planning and budgeting purposes. This mechanization provides the ability to analyze revenue requirements under various scenarios quickly and accurately.

- The Depreciation Studies Computer System (DSCS) is a unified collection of mortality analysis programs designed to aid the depreciation engineer in the development of required depreciation rate study data, to free the depreciation engineers from many routine clerical procedures so more time may be devoted to the primary task analysis; DSCS also maintains a data base containing historical mortality data by vintage for all plant categories.

- Mechanized systems have been implemented to perform separations analyses and trending of data which were formerly performed manually. These include Mechanized Analysis of GTE Studies (MAGS); Mechanized Analysis of Cost Studies (MACS); and Mechanized Analysis of Traffic Studies (MATS) applicable to all toll cost settlements. This results in more thorough and more systematic reviews, and less management and clerical time.

- The Independent Company Actual Study data system (ICAS) is a mechanized data base of Independent Company toll cost study details which has been implemented and expanded to reflect all toll cost study companies. This results in minimizing the manual processing required for special analyses.

- The Centralized Message Data System (CMDS) is designed to manage the intertoll network by providing message characteristics and point-

to-point detail of the switched telephone network. Originating and terminating toll message data are developed based on a daily sample of all toll messages originating in both Bell and Independent Companies. Data produced by CMDS are used in Traffic Trunk Engineering forecasts, Advertising and Marketing efforts, Rates and Revenue planning, and Settlements. This system replaces a manual collection of more limited data.

- Traffic Data Administration System (TDAS) is a mechanized collection of call counts and usage data. Saves much of the effort in collecting, summation and preparation of manual inputs to the separations process.

- The Division of Revenues Process (DRP) system mechanizes the basic and monthly Separations studies. All data required to perform study computations are stored in a data base. The system provides for accepting data from mechanized sources, manual inputs for additions and changes, and provides for inquiry requests to display specific portions of the data base. Provides validations and checks to insure user data is correct before performing a massive amount of study calculations.

The following cost study mechanization programs are utilized to identify and allocate expenses, revenues, usage and investment to provide quantitative support for pricing the service we provide. Without these systems we would require great amounts of additional human resources.

- The rates for Operating Telephone Company (OTC) access charge tariffs are calculated by Access Charge Analysis System (ACAS). Using commitment budget estimated operating results and forecasted demand inputs, this system fully distributes the access costs to the variuos exchange access service categories. The access charge rates are calculated to field the authorized rate of return. The resulting prices and analyses are filed in support of the access charge rates for each state.

- The Access Charge Rate Element System (ACRES) is used for allocating the Access Charge revenue requirement for the Transport and Special Access cost elements to individual tariff rate elements. This is accomplished through a mechanized system called ACRES III.

  ACRES utilizes unit investment inputs by rate element in conjunction with Access Charge Analysis System-Predictive (ACASP) jurisdictional separations revenue requirement and Mechanized Access Demand Quantification (MADQ) rate element demand quantities to produce fully distributed costs for an interstate filing.

Specifically, the results of this process are used in the Access Charge rate setting procedure and as rate element cost support for the Access Services Tariff Filing.

- Access Charges Data Base System (ADBS) is being designed for use by the BOCs in developing market based access pricing plans. Specifically, ADBS will be helpful in evaluating the relationships among:

  a. The level of NTS support obtained from usage services (Rate Category 3 prices)
  b. Local monthly service rates
  c. Customer demand for access and usage services
  d. Bypass competition
  e. Access Line of Business financial projections

- Capital Cost Model (CAPCOST2) is a computer model which computes the Depreciation, Cost of Money, and Income Taxes related to Capital Investment. It can be used as a stand-alone model or can interface with other computer programs. The program can be used to make studies in any of the three timing conventions currently used in the Bell System: Mid-Year Convention, the convention in which the corporate books are kept and terminal equipment analyzed; Beginning-of-Year Convention, used in many network studies; and End-of-Year Convention, used for comparative cost studies as developed in the text "Engineering Economy", Third Edition.

- Exchange Access Measurement System (EAMS) is a measurement system to determine on a sample basis the volume and type of traffic offered to the exchange network by any service. Measurements are limited to circuits that draw dial tone from No. 1 ESS central offices. The system is currently utilized for traffic studies of OCC ENFIA lines, TELCO FX service, CCSA-ONALS, and similar services. Study samples are designed to obtain statistically valid estimates of average montly usage per circuit on a state-by-state basis.

- The Embedded Costs of Exchange Messages Study (ECEMS) is designed to develop the embedded costs of exchange usage in terms of set-up and conversation minute costs by time of day, rate period and distance band. These costs are intended to support the rate design and cost support applications described in RL 79-12-473 and RL 80-06-312.

The principal cost inputs to the ECEMS methodology are derived directly from the Embedded Direct Analysis (EDA) and the Exchange

Cost Study (ECS). The methodology assumes that Coin related investments and expenses have been determined via the ECS (or other equivalent cost study) and deleted from the EDA investments and expenses. This "Exchange less Coin" investment and expense base is the source of the principal cost inputs to the methodology. This approach makes maximum use of available data and minimizes the possibility of significant closure errors between ECEMS and its companion methodologies, EDA and ECS.

- Exchange Cost Study (ECS) assists OTC's in determining revenue/cost relationships for various exchange services and in providing rate case support for tariff filings. System obtains exchange revenue, investment, and cost data from the Embedded Direct Analysis (EDA), various Company reports, and the division of revenue process and uses same to provide a further disaggregation of exchange revenues, investments, and costs into an open-ended quantity of services selected by the ECS user. Specific output capabilities of the system include:

    a. Revenues, costs, contribution, and revenue/cost by service
    b. Flat vs. measured service results
    c. Single vs. multi-party results
    d. Stand-alone coin and DA results
    e. Stand-alone revenue results
    f. Results on a per MT basis
    g. Access line cost details

- The Embedded Direct Analysis (EDA) study determines existing cost-revenue relationships among several categories of service provided by an Operating Telephone Company. The insights provided by this study are useful to telephone company management for internal use and in reply to questions by regulatory bodies.

- The EDA system is part of the service cost library on the MARK III GE Network and is run annually by all Operating Telephone Companies. Data from the various MR, MA reports, ISIS, and division of revenue studies are used as input.

- The CMDS Toll Analysis Subsystem (CTAS) of the LATA Analysis Data System (LADS) provides the capability to analyze the interLATA and intraLATA split of messages, minutes, and revenues for alternative LATA boundary configurations. MTS, Inwats and Outwats messages, which have been obtained from the CMDS system, are available for analysis for all jurisdictions.

- IntraLATA WATS (LATAWATS) is the new program which now performs the function of merging state specific WATS Information

System (WIS) and Centralized Message Data System (CMDS) data to create data bases suitable for input to the LATA version of the WATS Rate Planning Model (WRPM). The program also utilizes the state's LATA key file as used in the LATA Analysis Data System (LADS), to split a customer's WATS usage into interLATA and intraLATA traffic.

Formerly the WIS/CMDS merge function was performed in the standard TC WATS program which is currently deployed in the BOCs. This program is not being withdrawn and may still be used to create a data base for the non LATA version of WRPM.

- The Model for the Economic Analysis of Network Services (MEANS) determines the embedded cost of switching and trunking facilities for inter and intraLATA MTS and WATS. These costs are determined by routing on a link by link basis, the CMDS usage data over the actual switching and trunking network from TNDS and TIRKS.

- MTS/WATS Intrastate Model for Incremental Costs (MIMIC) provides a technique for estimating the long run incremental cost effects of changes in intrastate MTS and/or WATS demand. MIMIC is used to evaluate the economic effect of MTS/WATS rate plans. Complete description, input methodologies, and user instructions are contained in the Network Service Cost Methods Manual, Volumes, published by AT&T - Network Service Costs.

- Model for Usage Sensitive Incremental Costs (MUSIC) is a computerized methodology designed to support the tariff design and implementation scheduling dimensions of the measured service implementation planning process on a jurisdiction basis. Its principal inputs are data describing network configuration, current customer populations by switch, customer calling characteristics, conversion scenarios, and anticipated customer reaction in terms of demand. Its principal outputs are incremental changes in traffic sensitive investments and expenses on a year-by-year basis for study periods of up to 20 years. The model is designed to provide the principle inputs for economic analysis of the effects of different tariff designs and implementation scenarios in the conversion to measured service. Its design facilitates sensitivity analysis of such factors as growth in usage rates, expense levels, etc.

MUSIC's role in the measured service planning process and its interaction with other measured service planning methodologies is described in the Measured Service Implementation Guide.

- Revenue Analysis from parametric Usage Description (RAPUD) provides the capability to investigate attributes of alternative measured local tariffs early in the measured service planning process. It is intended to supply the opportunity for the OTC rate planner to gain the experience in measured service tariff design before detailed usage studies using SLUS II are completed. When these usage studies are complete more sophisticated tools such as BERPM or REVS are available.

RAPUD requires estimates of MEAN subscriber usage and a description of the measured tariff as input. Distributions of subscriber usage which represent the customer body are created from the input means which are then priced out under the measured tariff resulting in an efficient and inexpensive, computational procedure. RAPUD can also price out individual customer usage data obtained form the SLUS II mini data base in lieu of the distribution of subscriber usage.

A mechanized interface with MUSIC has been developed which enables the OTC rate planner to investigate the incremental expense and investment effects of alternative measured service tariffs and implementation strategies.

- Service Cost Analysis for Dataphone Digital Service (SCADDS) is a computerized system for the development of costs for the provision of Dataphone Digital Service.

  SCADDS is used in conjunction with an engineering planning model, DDSAPs. DDSAPS is used to determine effective equipment configurations for the DDS network in each justification. The output of DDSAPs is used to provide network planning information and, in that capacity, develops the necessary equipment quantities required for input to SCADDS. SCADDS, in turn, uses the anticipated station demand to allocate the equipment investments, by speed, to the appropriate rate/cost elements.

- The Switching Cost Information System (SCIS) is an interactive computer program capable of linking and executing central office switching cost methodologies. Information may be obtained at the user's option in terms of material costs only, engineered, furnished, and installed (E, F, & I) costs, or monthly costs. The user also can obtain output formats in the tariff format if the requested vertical service has an illustrative AT&T tariff. This system replaces older, stand-alone versions of various costing methodologies.

- State Toll Embedded Analysis (STEA) - The objective of the study is to disaggregate the State Toll category of the Embedded Direct Analysis (EDA) into sub-categories or services providing revenue, cost and contribution for each disaggregated service. Following are the suggested sub-categories:

  a. Dial Rated MTS or (DDD)
  b. Optional Calling Plans (OCP)
  c. Operator Handled Differential (OPH)
  d. Toll Directory Assistance (DA)
  e. Coin Sent Paid (SP)
  f. Coin Non-Sent Paid (NSP)
  g. 800 Service or Inwats
  h. Outwats

  The user, however, has the flexibility to combine or redistribute these services as best suited for the tariff structure of their specific

jurisdiction. The STEA special studies suggest the use of input data which should be available system-wide.

- The Tariffs and Costs WATS/WIS (TCWATS) Database Study merges the WATS information system tape and the Centralized Message Data System WATS sample tape to create a customer information file for a specified study month and study state. This file will then be sent to the ADP Network Services time share system in Ann Arbor, Michigan for further processing. (TCWATS) will also produce a series of reports that can be used to validate the reliability of the customer information file.

- The Total Network Information Cost System (TNICS) models the basic local (and total) network initially using currently available structures, algorithms and software of existing models such as MIMIC, LCCS, MUSIC, etc. with later enhancements and integration with other Network Cost Models and interfacing with Network Engineering and Marketing Models, Systems and Data Bases. The project is divided into phases (for ease of parallel or serial development) among which are:

    a. Creation of LOCal SWitching INventory (LOCSWIN) from existing sources (currently being implemented).

    b. Enhancements to and annual update of such LOCal SWitching Inventory (LOCSWIN).

    c. Creation of Local and Total Trunk Group Inventories and Routing Masters.

    d. Creation of software modules to generate hourly local and total point-to-point traffic profiles from existing Engineering Measurements with disaggregation using Accounting Measurements.

- The T and/or N Carrier Investment Calculator (TONIC) Program has been designed to compute the average investment of carrier systems

and the characteristics of those systems, comprising a universe of either N or T Carrier, on an exchange or an interexchange basis. Investment calculations on a 4-KHZ basis are divided into three categories: terminal investment per end, line circuit equipment per mile, and outside plant investment per mile; and may be computed on either an embedded or a prospective basis.

The program resides on the in-house, time-sharing system, based in Piscataway, N.J., and combines centralized material pricing information with localized (i.e., state-by-state) carrier configuration information, material and installation factors, utilization, etc.

- The WATS Information System (WIS) collects WATS service order and selected usage data pertaining to all WATS lines in service. This data is collected monthly from the associated company RAOs (Revenue Accounting Officers). The collected data is edited, initial period and usage revenues are calculated, and the processed data is used to update a master file of WATS lines. The master file is the basic data base used to produce various WATS reports for product managers, rates and tariffs, associated companies, AT&T general departments, and Long Lines sales groups.

- The Intrastate WATS Rate Planning Model (WRPM) is a mechanized system that allows for customer-specific pricing and costing of the WATS services. Designed to allow the restructuring of the services as well as development of market strategies. WRPM is offered via the automatic data processing (time-shared) service.

- The Access Charge Rate Element System/Local Version (ACRES/SW) is the Access Charge Cost Studies Program being used locally to develop the unit prospective embedded costs and demand level prospective embedded costs for each rate element in the Open Billing tariff. It also develops distributive ratios. These ratios are the means of distributing the prospective embedded costs to the revenue requirement.

- A time-shared computer program called Central Office Cost Study (COECOST) is available to compute the total annual cost.

- Contribution Analysis (CONTRANB) is a mechanized method for the arithmetic computations to determine the difference in revenues and costs that will occur when a new product(s) or service(s) is (are) introduced and/or when an existing product(s) is (are) repriced.

  The methods employed in this model create the year-by-year revenues, costs and contribution of a new or existing product or service from the data in a user file. Cumulative present worth values are used to reflect the time value of money. This process is repeated for each set of conditions (test rates).

- The Directory Assistance Cost Study (DACS) is a series of time-shared programs used to develop the direct costs of directory assistance service. The programs use embedded input data from Company reports to produce the embedded cost of DA. Forward-looking studies, using data from the embedded results as a historical base, can also be output. The programs provide mechanized cost analysis which otherwise would require many hours of manual effort.

- The Demand Analysis Reprice Channel System (DARCS) is a computerized model used for calculating the change in circuits and revenue due to rate changes for private line services. It also maintains a history of circuit inventories.

- Directory Assistance Reprice Program (DARP) is a mechanized procedure to calculate Long Distance Interstate (LDI) and Long Distance State (LDS) ratios required for Directory Assistance Separation Studies. It is recommended as a replacement for the manual analysis and summarization of the Special Directory Assistance Study. DARP was developed by the New Jersey Bell Telephone company and resides on the RAPIDATA Incorporated Time-Share System.

- The Dual Element Cost Assigned Model (DECA) is a user-oriented, time-share computer program which assigns direct and common service ordering costs to the services, equipment, and certain premises work items offered by the OTCs. The program was developed by an outside vendor, ADP Network Services, and the Tariffs and Costs group at AT&T. It is the property of AT&T, but it is maintained by ADP. DECA is available to all OTCs if they support the DECA cost sharing project. The usual user number procedure applies. User number assignments and use of the program are coordinated through the Tariffs and Costs DECA Coordinator at AT&T.

  DECA assigns direct costs based upon cost equations described in Tab 10 of the Dual Element Tariffs and Costs Manual. It assigns common service ordering costs by analyzing service order and USOC activity in light of a weighted movement procedure. A detailed discussion of this weighting procedure also appears in Tab 10.

- The Embedded Direct Local Coin (EDLC) analysis is a time-shared program used to develop the direct cost of local coin service. The program uses embedded input data from Company records to produce the embedded cost of coin service. The program provides mechanized cost analysis which otherwise would require many hours of manual effort.

- The purpose of the Exchange Services Agreement Cost Study System (ESACS) is to determine the costs incurred in providing various service offerings to Independent Telephone Companies. Different types of services are studied.

  a. Directory Assistance
  b. Alarm Recording
  c. Contracted Repair Call Recording
  d. Non-Contracted Repair Calls
  e. Contracted Intercept

- The Annual Cost Factor Program (FACTORS) is a mechanized program which develops annual cost factors for the following cost studies or individual factors:

  a. Private Line Cost Study

b. WATS Access Line Cost Study
c. Incremental Toll (MIMIC) Cost Study
d. Extended Area Service (EAS) Cost Study
e. Local Measured Service (LMS) Cost Study
f. Maintenance Factors
g. BWECO, BSRPT and BIDC Factors

These factors are used to convert investments into annual costs. The costs included in the factors are the capital costs (depreciation, cost of money, and income taxes) and the operating costs. These operating costs include maintenance, administration, ad valorem taxes, license contract, gross receipts tax, interest during construction and other income.

- The Facilities Analysis Program (FAX) is a system used to determine the routing profile for DDD calls in a state by first choice intrastate routes. The resultant profile includes:

  a. Average number of route miles by the time of day and rate band.
  b. Average number of toll switching occurrences by rate band.
  c. Total route miles Busy Hour sensitive by time of day.
  d. Types of facilities utilized (cable/carriers mix), i.e., N-Carrier, Radio, T-Carrier and metallic facilities by rate band and time of day.
  e. Average number of circuit terminals by rate band and time of day.

- The Inflation Factors (INFACTS) system calculates inflation factors which are used in cost studies to inflate investment, recurring expenses and non-recurring expenses over the life of the product or service being studied. These factors are based on BSTPI Indexes, cost of money, and broad guage plant-in-service forecasts. The factors are developed on an account specific basis.

- Line Haul Cost System (LHAUL) is actually a number of programs accessed via a procedure file for the development of Carrier Terminal and Route mile unit investments and their associated costs.

- The Loop Investment Calculation (LOOPVST) program is designed to take the cable design Criteria Unit Investment Data and the Loop Length Distribution of samples to calculate the study area Average Investment per Loop in Outside Plant with the associated confidence interval. It will also provide a table of designs, by kilofeet, upon request.

  The LOOPVST Program can provide the Average Investment per Loop by individual subsample, for just the total sample or for both subsample and total sample as requested by the user. The Cumulative and Component Investment per Two-Wire Loop and the Theoretical Investment per Two-Wire Loop by Outside Plant Code will be generated.

- The Mobile Telephone Cost Study (MOBILE) computer program was developed and written at Southwestern Bell General Headquarters. The purpose of this program is to develop the current total monthly cost of Radiotelephone investments for the Metropolitan Service and the Wide Area Service.

  MOBILE produces a printout which gives the following information; 1) 67C investment by location, including embedded costs, replacement costs, and TPI multipliers; 2) Annual and monthly costs by locations and 3) A separate summary of annual and monthly costs for 150 service and for 450 service for the given state.

- The Southwestern Bell Measured Service Tracking System (MSUS) provides tracking data and analysis on all measured service customers. The purpose and uses of the tracking data are many and varied. One of the primary purposes is to provide a means of knowing how many customers have chosen a measured service plan and what are their usage and billing characteristics. Beyond that, the data can be used in reprice and analysis models to test the effects that a change in a particular plan would have on future rate applications.

- The Measured Service Tracking Study (MSTS) is a centrally developed management information system designed to aid OTC managers in the planning, implementation, and assignment of local area services. The system collects summarized revenue, measured usage, and customer attributes, by account, for a universe of customers in a defined geographic area. Detailed usage and questionnaire data will be collected on a sample of customers.

  The system will provide the capability of producing user defined reports and geographic analyses of revenues, local usage, class of service movement, and demographic analyses MSTS.

- The Non Recurring Cost System (NRCOST) calculates nonrecurring costs for all private line and special service offerings. Weighted costs, based on probability of occurrence, are developed for intraexchange services, and for interexchange services. To accomplish this, files are utilized which contain information about labor rates, labor time, and facility probabilities.

- The involvement of General Headquarters Rates and Tariffs personnel in fulfillment of the tracking requirements established by the Public Service Commission of Missouri for the Optional Extended Community Calling Service (ECC) in St. Louis cosisted of the development of that portion of the tracking procedures focusing on customer development and revenues. This information will be produced by the Optional Calling Plan Analysis and Tracking System (OCPATS) which has been developed by this organization for use in tracking ECC.

  More specifically, OCPTS will produce three reports that will provide the following information about ECC in Missouri.

a. The number of customers subscribing to the plan by type of customer - either business or residence;
b. Usage in messages and minutes by account and type of customer. In conjunction with (1) above, this data indicates the extent of customer development and the demand for ECC.
c. ECC revenues by account and type of customer.

- The purpose of the Rate Group Analysis (RGA) is to determine what the embedded cost/revenue relationships were for the provision of Network Access and Exchange Usage by rate group. The Rate Group Analysis assigns total exchange usage and Network Access direct costs and revenues to each rate group. The direct costs are assigned on a cost-responsibility basis. The results are historical, based on investments, costs, and revenues developed in the Embedded Direct Analysis (EDA).

  For purposes of this analysis, exchange service is defined as a telephone line terminating in one of our switching central offices, and used for originating and receiving calls only to and from points within the local exchange calling area. PBX and Centrex-CU trunks and Centrex-CO lines are classified as exchange services and are assigned the appropriate filed tariff rates.

- The Restructured Private Line Tracking System (RPLTS) was developed to respond to Public Service Commission tracking requirements in connection with Restructured Private Line (RPL) rate activity as well as to provide Private Line service information for Market Management and the Rate Department.

  The program logic incorporated by RPLTS will allow identification of circuit types and provide tracking of each rate element of Private Line service as defined in the Restructured Private Line Tariff by Circuit Type, for example, Circuit Types 102, 250, 311, 420 etc.

  The tracking of the rate elements is accomplished through the use of the specific Uniform Service Order Codes (USOCs) and/or combinations of these USOCs.

- The Service Area Function (SAF) program computes the investment and circuit characteristics of the transmission and signaling circuit equipment required to furnish private line channels and exchange mileage rated services. SAF is mechanically linked with engineering's generator of equipment lists and design ensembles (GELDECS) which automatically generates the material list priced out by SAF. The GELDECS/SAF tandem design/costs programs are available for use by the associated companies to support their restructure and Reprice of Private Line (RPL) project tariff filings.

- The Special Service Arrangements Calculator (SSACALC) program is used to develop monthly costs for Special Service Arrangements. This program takes the results from the SWBCOST run and performs some additional calculations to come up with a total annual cost for

an SSA. These results are then formatted on a summary sheet which is then forwarded to Rates.

- The SWBCOST program is used to develop monthly costs for various types of terminal equipment. This program calculates the capitalized investment, nonrecoverable costs, recurring and non-recurring expenses, and capital costs for the terminal equipment being studied.

- PRA Tracking Report (TRACK) is used to chronologically list the disposition of preliminary rate authorities used as a management information tool for tariff filings.

- Toll Revenue Effect (TRE) is a system used by Revenue and Public Affairs and Comptrollers-Business Research to study intrastate toll traffic and prepare rate cases from this data. These jobs are processed monthly upon receipt of the MROLKP135T1 tapes from Long Lines. Processing occurs in St. Louis only.

- The USOC Summary Program takes the costs that are developed in SWBCOST2 and formats these costs into a cost study summary form. The summary provides investment, installation expense and annual cost information.

- ACCESS9Z is the mechanization of a directly assigned cost study which annualizes current expenses and assigns proportionate investments by Job Function Code. These individual job functions can then be combined to produce cost for specific rate elements. The output includes support data, unit costs and an input file to be run through the Access Charge Cost Studies Program.

- ACCESS9 is the mechanization of a fully assigned cost study which factors the directly assigned inputs used in the ACCESS9Z program to a fully assigned level. In addition to the information provided above, the program develops and includes General Expenses in the output.

Department Public Relations

- Public Relations uses internal media to make employees more aware of ways they can help control costs and generate revenues. Since 1980, 21 major articles have appeared in Telephone Times which address cost control and revenue stimulation.

- An on-going poster campaign is used to promote service and earnings subjects such as safety, expense control, courtesy and revenue stimulation.

- "Let's Talk" is an informational advertising program explaining changes in business procedures resulting from implementation of Computer Inquiry II. A toll free number, print advertising, bill inserts and information coupons made up the program and were designed to minimize employee time spent answering customer questions.

- "The Effect of Change" booklet was distributed to customer audiences in the state to explain the Company's 1983 rate filing and changes occurring with competition and divestiture.

- Consumer Panels were formed which offer opportunities to review policies and procedures and make changes to benefit customers. This helps to assure the company that it is responsive to customer needs.

II. MANAGEMENT OF HUMAN RESOURCES

- The Tuition Plan provides full-time employees with the opportunity to voluntarily take off-the-job (non-paid time) study courses. Courses approved under the Plan must be related to the business to the extent that the knowledge gained will broaden the employee's usefulness to the company in his/her current position, or in a position to which the employee might reasonably aspire. The Company will pay for the course provided the employee receives satisfactory completion in accordance with the performance standards of the institution.

- A Code of Business Conduct is covered annually with each employee as a reminder of the principles that govern our business and our individual conduct. Violations can lead to disciplinary action, including dismissal.

  The Code reaffirms the importance of high standards expected of employees in proper business conduct which includes integrity, efficiency, good citizenship, honesty and observance of the law.

- The Company operates Assessment Centers in sales operations and for entry into management positions from occupational status. This assessment process is designed to determine whether or not an individual has the skills and management qualifications deemed necessary to successfully fulfill the responsibilities of these positions.

- A Management Job Evaluation process is used to serve as a systematic means of rating and paying management jobs according to their contribution to the business. The plan is designed to eliminate evaluation guesswork and insure management jobs and salaries are rated as objectively as possible.

- The Management Appraisal System is used for directing and improving the performance of management employees, and for providing sound, objective, factual data regarding the qualifications and performance of each management employee. The system distinguishes between job performance and managerial potential. Managers at all levels use this System as a guideline for directing managerial performance, identifying contribution and achievement, appraising performance and potential, and assisting in career management.

- The Company has a formal Management Salary Plan which rewards employees with merit treatment based on their contribution to the business.

- The Nonmanagement Performance Appraisal Plan is a process for formally recording and discussing with the employee, his/her work performance and to assist management in the responsibility of insuring that specific company policies are covered with each

employee. The system is a standard plan for appraising the work performance of each nonmanagement employee in a uniform manner, using objective data.

- The Company has a formal Career Counseling Program for nonmanagement employees. Through this process, the employee and his/her immediate supervisor identify other jobs the employee is interested in. Then the supervisor determines whether the employee is qualified for the desired jobs and if not, implements plans to develop the qualifications needed for the desired jobs.

- Management Training is used to improve the overall strength of our management teams. The training sequence for first level managers allows managers to progress from basic administrative skills and knowledge to the development of communication and interpersonal skills abilities. Each of the knowledge and skill areas included are essential for effective management in today's changing and competitive environment, and for building positive work relationships.

- Second Level Development Training programs are valuable to managers responsible for implementing major corporate objectives and achieving specific organizational and personal goals in our rapidly changing environment.

- In Missouri, we have two major safety programs. These are an accident prevention plan and a defensive driving program both designed to eliminate accident causes in order to reduce personal injuries and control losses both in motor vehicle costs and lost work time.

  A State Safety Staff continually conducts conformance reviews to assure uniform implementation of the programs both in the field and in office locations. Both plans are intended to ensure that safe working practices are being followed by our employees. Through June 1983, Missouri's accident incidence rates are below total company and system rates.

- Following many months of preparation, the CWA and SWB began formally implementing the Quality of Work Life process in Missouri during the latter part of 1982. Union and management representatives describe QWL as "an opportunity to voluntarily share and participate in decisions that affect quality of life in the workplace". What began as theory, concepts and descriptive verbage has now change to reality for hundreds of Missouri employees who are actually participating in more than 50 local workforce committees. Although quite early in what is called "a long range process", QWL is bringing changing job methods and procedures; but more importantly, it is improving communication channels and relationships between union, management and nonmanagement employees as they gain mutual understanding and appreciation that all share common objectives in the workplace.

- Technical Training schools have been provided for many years. These schools provide employees with the expertise to work in the constant changing technical environment in the field of communication. This training improves the employees' efficiency and safe working habits.

- An Anticipated Disability Program was started in April, 1979 and provides sickness benefit payments to eligible employees who are granted a leave of absence because of anticipated disability. An anticipated disability is a disability of over seven calendar days which is expected to occur during the requested leave period and for which prospective medical treatment has been scheduled, such as in the case of elective surgery or pregnancy.

  For this period of time there is no pay until such time as employee gets totally disabled. This control results in a cost savings to the Company. This is normally related to a surgery that is elective and necessary, but not life-threatening.

- An Employee Assistance Program was initiated in St. Louis in 1983. This is a cost-saving program that provides assistance for employees or their families that have medical/personal/behavioral problems.

  Its purpose is to improve an unsatisfactory work performance through the rehabilitation of the employee. It is a means by which the Company can protect its investment in human resources by reducing productivity losses, poor quality of work, absenteeism, tardiness and accidents that often occur when these problems "spill over" into the work place.

  This is a very private program between the Company representative and the employee or member of their family. This program will be expanded to the remainder of state in 1984.

- Sickness and Accident Disability Benefit Plan is a plan where an employee is paid for absence due to sickness (based on proof by a physician's report) for a given time.

  These cases are monitored very closely by the Medical Advisor and staff members from the Benefit Office to be sure costs associated with and length of absence is appropriate for the illness involved. The end result has been a 1.2% disability absence, which is more than acceptable.

- In Missouri, under the Retired Visit Program, 100% of retirees are contacted yearly by a representative from the Benefit Office to answer any questions that they may have relative to their coverage under medical insurance, life insurance, etc., so as to be sure unnecessary costs are not being incurred.

- Unemployment Compensation Claims for unemployment benefits are protested as to their validity with an end result that over 50% have been disqualified and, therefore, the unemployment fund has not been adversely reduced due to lack of management attention.

- An Attendance Awards Program was introduced in Missouri in 1980. This program has contributed to a savings of over 775,000 employee work days during the past 3 years comparing Missouri employees incidental absence to the company average. Missouri averaged .7 percent incidental absence compared to 1.4 company average. These results far exceed other major industries.

  Because of the success of the Missouri program, the Company has adapted its concept and has established a company-wide Attendance Award Program.

- A telephone answering device was installed to enable applicants to know what jobs are available and the qualifications that are needed. This saves one half hour per applicant which equates to over 400 hours a month of interviewer and staff's time.

- Videotapes of various jobs are provided that allow applicants to be more knowledgeable and aware of job content thus allowing applicants to make better decisions before accepting the job offer.

- The Springfield Employment Office and Placement Bureau was closed and the responsibilities transferred to the Kansas City offices. This allows us to operate in a more efficient manner and enables us to reduce the staff by seven (7) employees.

- The Employment Office's staff has been reduced by eight (8) management and three (3) nonmanagement employees during the last two years. This is an addition to the seven (7) employee reduction resulting from closing the Springfield Employment Office and Placement Bureau.

- The pre-employment test has been modified to become more job related. This enables these tests to ensure the placement of better qualified applicants.

- Reports have been standardized and combined on a state-wide basis; thus, saving duplication.

- Placement Bureau personnel visit outlying areas to test employees who have requested transfers. This saves the Company money by allowing many applicants to be tested and interviewed at the same time.

- A procedure that will enable the departments to select better qualified employees for transfers was initiated. This allows the department to be more knowledgeable in their selections.

- The Placement Bureau reports have been mechanized; compared to being done previously in a manual fashion.

- The EEO Affirmative Action Hotline has been developed in the state. This provides an opportunity for employees to pursue a complaint internally. These complaints are investigated and resolved where

possible, thus reducing the necessity of the employee filing a formal complaint with the government agencies. This procedure greatly reduces the amount of time and money involved in a formalized complaint, attending the fact-finding conferences, on-site premise visits and research and documentation of a large amount of documents normally required in a government agency investigation. This procedure results in a substantial saving to the company.

Department Network Distribution Services

- The Integrated Force Administration Mechanization System (IFAMS) is used to mechanize the scheduling and forecasting of the Repair Service Attendants (RSAs) needed to handle call volumes at the Centralized Repair Service Attendant Bureau (CRSAB). This forecast system is used to input half hourly calls and work volumes from the ACD-ESS Management Information System (AEMIS) to develop minimum quarter hour force requirements utilizing past call volume trends. AEMIS supplies information on the number of calls, the average number of seconds it takes to handle a call and the number of RSAs required every half hour. The IFAMS forecast is then matched to employee tour preferences in the AEMIS assign program to provide the most cost efficient twenty-four hour coverage. Without these two systems dozens of manhours would be required each week to even approximate the force requirements.

- Several technical training courses are available, specifically designed for construction forces. All Cable Splicing Technicians initially receive two weeks of basic cable splicing training and after approximately six months experience on the job they attend a one week advanced splicing school. Other courses designed for specific needs include fiber optic training and line construction. Suppliers of test sets and specialized equipment also provide training on the use of their products.

- LMOS and MLT training for both maintenance administrators and supervisors is an on-going activity. Since the introductions of mechanized Repair Service Bureaus in Missouri, initial training and subsequent updates have been a continuous practice. A computer training data base is used to give trainees "hands on" experience with a data terminal.

- A recent innovation in technical training is the Workcenter Information Package (WIP). These packages consist of a slide/tape presentation to be presented by the first level supervisor at the garage location. WIP topics range from the proper installation and use of new or complex hardwire, to particular rehabilitation techniques, to safety subjects. WIP can be used for initial or refresher training and has been very well received in the field.

- The Cable Repair Force Management Plan (CRFMP) was introduced in 1978 in order to provide information for better management and utilization of cable maintenance forces. It provided for forecasting of force requirements, for scheduling purposes and for performance measurements of supervisory groups as well as individual technicians. CRFMP was subsequently mechanized and the scope of the information was broadened by the Cable Repair Administration System (CRAS). CRAS went on line in 1982.

- The Mechanized Repair Force Administration System (MRFA) was designed so that available data could be utilized as a forecast tool for future work loads. By using the information provided by MRFA, we are able to more accurately predict repair demands and adjust our work forces to meet those demands.

  This mechanized system of forecasting has replaced a manual system which required several hours per week of manual computation.

- Distribution Services Engineering Center Technical Training is provided to all management and non-management personnel. This training is a formal, instructor lead program. Currently there are six non-management courses, one week in length; seven management courses, one week in length; six management courses two weeks in length; and one management course, four weeks in length; on-line. These courses are conducted away from the work environment in a formal classroom setting to eliminate distractions and improve the learning process. Each course is structured to achieve maximum work process familiarity and to maximize productivity earlier, reduce error rates in job performance and improve overall customer service results.

- Loop Assignment Center Technical Training is provided to all management and non-management personnel. This training is a formal, instructor lead program. Currently there are four non-management and two management courses, one week in length, on-line. These courses are conducted away from the work environment in a formal classroom setting to eliminate student distractions and improve the learning process. These courses are structured to achieve maximum work process familiarity and to maximize productivity earlier, reduce error rates in job performance and improve overall customer service results.

- A wide variety of technical training is provided for our Installation and Maintenance (I&M) occupational and management personnel at the Southwestern Bell Center for Communications Technology. Over 35 courses are offered in this area, ranging from a "Basic Electricity" course to the more complex "Noise Mitigation" course. There are six training locations within the five state region. Additionally, in order to reduce training costs, those courses that are considered high density courses are available to be suitcased to field locations for presentation.

- There are several technical training courses available specifically for Cable Repair Technicians (CRT's) and supervisors of CRT's. These courses range from basis courses in cable repair fault locating to more specialized courses such as air leak locating. These courses involve "hands-on" training using test sets and equipment used on the job to locate and fix trouble. Supervisory training is conducted on air leak locating and outside plant rehabilitation techniques.

- A Construction Force Management Plan has been implemented. It provides management with methods for:

  a. Improved job planning
  b. Forecasting force to match load
  c. Tracking job progress
  d. Assigning personnel a full day's work
  e. Identifying delays or roadblocks
  f. Performance analysis

- The Assignment Force Management (AFM) Plan was implemented in 1981 to obtain maximum performance and improve control of the Loop Assignment Center (LAC) operations. The benefits derived from the plan are:

  a. Forecasting force to match load
  b. Improved load forecast
  c. Actual force and load tracking
  d. Improved work force management
  e. Improved efficiencies and identification of roadblocks
  f. Improved productivity levels

- Reorganization of Network Distribution Services (NDS) Installation and Maintenance (I&M) districts and staffs in Missouri has resulted in a reduction of the number of districts and staffs. By increasing the managerial span of control and consolidating cable maintenance functions into I&M districts, we have reduced 14 districts in 1979 to 10 in 1983. Similarly the general manager's I&M staff was eliminated with the state I&M staff assuming the functions previously performed by the general manager's staff. This was accomplished without adding any people to the state I&M staff.

- The work force used to test trouble reports in our Maintenance Centers on subscriber lines has been changed from one composed entirely of craft technicians to a clerical work force. With the introduction of the Mechanized Loop Testing (MLT) system testing and basic interpretation of test results have been mechanized. Testing is now automatically done on most trouble reports. Substitution of clerical for craft employees performing this function has reduced expenses.

Department Network Switching

- The implementation of mechanized systems mentioned in category I has helped in centralizing many of the functions of Network Switching. Separate work groups such as Network Administration Centers, Special Service Centers, Automatic Message Accounting Control Center, Minicomputer Maintenance Operations Center, and Trunk Operations Support Center perform specialized tasks. This functionalization helps to more efficiently utilize the work force.

- Technical training in the rapidly changing communications field is an important part of the Switched Services Section. We utilize training paths to keep both our nonmanagement and management personnel technically qualified to perform their jobs effectively and efficiently.

	1982
Nonmanagement Technical Training Hours	58,004
Management Technical Training Hours	23,200
Total	81,204

These hours represent forty-one (41) man years of our force of 2,584 people in 1982. Nineteen eighty-three (1983) training requirements are up slightly over 1982 due to special service training requirements.

Department Operator Services

- Missouri Operator Services force level has trended downward over the past five years. As a result of centralization, mechanization and the continuing efforts and improvement in the efficiency of our operations, we have realized about a 7% reduction in force. A portion of the reductions include transfers (some of which are on a temporary basis) to outside departments within the state and do not necessarily reflect net losses for Missouri. This force savings translates to a signficant savings in expense requirements. The benefits associated with these employees also represents a substantial dollar savings.

  It should be noted that the changes we have implemented have enabled us to handle calls with fewer employees while continuing to provide consistently high quality customer service.

- Missouri Operator Services developed and implemented training programs to provide expertise for effective job performance for both management and nonmanagement employees.

Department Centralized Services

- Overtime controls were established and are closely monitored on a weekly basis. Overtime benchmarks were initially established in 1981 which require the fifth level's written explanation to the Vice President-Missouri when overtime results for a given week exceed the benchmark.

- Since December 1979, through June 1983, we have reduced 1,144 employees. Force reductions in 1982 were 220, which amounts to an estimated savings of $6,534,686 in 1982. These reductions were largely accomplished by introduction of mechanized systems, office consolidation and increased span of control.

Department Business, Residence and Public Services

- Business Service Centers, Residence Service Centers, and Public Service Centers were created as separate entities beginning in 1979. This functionalization offered customers more expertise from the individual groups of employees.

- Functionalization continued as service representatives were aligned in Account Inquiry Centers or Demand Sales Centers. This specialization provided a more efficient means of training employees to better serve the customer.

- Within the Business Services Center, the Service Order Entry Center for Special Services (SOEC/SS) was created. The SOEC/SS handles formatting, typing, and completing all orders that require processing by the Circuit Provisioning Center.

- Business Office Consistency of Answer Measurement Plan (BOCAMP) is a method of access measurement that uses the percentage of time that all positions are busy as the basic indicator of accessability to our business offices. BOCAMP can be used as a tool to monitor, during the day, availability of open customer lines, to provide representatives with closed time to perform clerical functions, and to assist in managing force levels.

- Staff functions of the Business Services Center were consolidated to form one centralized staff. In 1981 there were 12 staff management employees. As of July 1, 1983, there are four management employees.

- In 1981, to reduce training time and aid in force retention, the 13-week initial business school was reduced to six weeks with special packages given as career paths dictated. A new self-paced modular training concept has been trialed and will be the training vechile used for Missouri. It offers the BSC more flexibility as the number trained can vary, where previously a full class of four was required. The instructor-to-student ratio is now increased to six-to-one. In conjunction with centralization of the training function, maintenance

of service rep reference handbooks was transferred from the Missouri staff to the Centralized Training Group.

- Over a three-year period, centralization of staff and streamlining of course content were undertaken to increase the efficiency in training Missouri BSC employees. In 1980, training staffs previously functioning in Kansas City and St. Louis were consolidated into one statewide district. In January 1982, the training function was centralized further and transferred to general headquarters, reducing the number of training staff (management) on the Missouri payroll from 21 in 1981 to 0 in 1982.

- Consolidation of two outstate Business Service Centers, St. Joseph and Sedalia contributed to an increase in span of control.

- Assistant Manager Job Design (AMJD) was introduced in Missouri Residence Service Centers to further organize the assistant manager's job. This functionalization of daily supervisory responsibilities provides a minimum of two days per week for development of subordinates. This process promotes developing service representatives to their full potential which improves service to customers.

- Business Office Cost Analysis Plan (BOCAP) is an internal efficiency measurement comparing state results to company results. The report provides data for force management and forecasting.

- In 1981 Missouri Public Services introduced public services sales person training for all public telephone representatives. This training course is an intensive two week course that provides the sales person with written, oral and practical demonstration of the skills and knowledge required to effectively sell public telephones. The training is directed towards the four major areas of the sales person's responsibility: 1)direct selling, 2)handling operational problems, 3)work planning and 4)tactical sales planning. Since the introduction of this training we have improved public services revenue per station and reduced sales expense per station.

- Due to mechanization enhancements in Public Services many manual tasks have been eliminated thereby reducing employee force. Since 1980, the state of Missouri has reduced their force by three coin collectors and two key clerks. In addition, over the last four years, productivity has increased approximately 18 percent, thus our number of collections have been increased significantly with no force additions.

Department Business Sales

- Programs have been initiated over the last two years in particular to significantly reduce staff levels. During this period over 200

Marketing staff positions have been eliminated and personnel reassigned. Examples follow:

- Staff personnel in state marketing organizations have been virtually eliminated, with the Headquarters staff performing most of the staff support work for sales personnel in the five state region.

- Three districts in the market management organization were combined into one (with corresponding reductions of second and first level managers and clerical support).

- The Sales Tactics District was reduced by eight employees.

- Headquarters staffs for service center and sales support have been merged. Subsequent re-assignment resulted in a reduction of one District Manager, four Staff Managers, and two Staff Supervisors.

- The Marketing budget staff has been centralized, resulting in a fifty percent force reduction in the financial analysis area.

- All Marketing management payroll work has been centralized, thereby reducing clerical overhead in field sales offices. This has also decreased payroll errors and has ensured proper salary treatment.
- Extensive Business Sales training curricula have been developed to ensure a professional sales force. Major attributes are as follows:

    a. Job experience within the past 18 months in the job title which will be taught.
    b. Successful completion of instructor curriculum.
    c. Individual certification on each course.

  These qualifications are rigorous but they produce individuals with the background and expertise to meet the training needs of the students. The process has upgraded the quality of instruction and therefore the quality of the training program.

- During the last five years training delivery has been centralized and standarized to ensure that each employee receives the same amount of quality of training. The centralization has led to savings in the cost of facilities and supplies and has afforded efficiencies in scheduling.

- Associate Account Executive Program is an apprenticeship for newly hired or appointed sales people which establishes a clearly defined, comprehensive program of combined classroom and field training. Expectations for participants are specifically outlined and critical checkpoints during the program are used to evaluate the progress of each student.

- Computer Managed Delivery of Training combines self-paced instruction with computer provided testing for sales personnel. Because of the individual nature of the training, it can be studied at

the student's discretion within the student's work facility. The primary savings from this program is reduced travel expenses.

- Sales Assessment assures candidates for sales jobs are screened for sales potential before acceptance. This screening process uses proven personnel assessment techniques to ensure a higher success rate for applicants, thereby holding training and development costs to the minimum.

Department Directory

- A staff of sales managers deliver Initial Sales Training to new directory representatives. The training consists of six weeks of intensive instruction on how to sell, the use of mechanized sales systems, product knowledge, the principles of advertising and Yellow Pages specifications and standards.

- Sales Management Training is conducted by the Directory Learning Center staff. Current training (recently expanded from four to eleven weeks in length) provides instruction to newly appointed sales managers and emphasizes time management, market management, personnel development, management skills, labor-management relationships, sales leadership and problem-solving techniques.

- Field Sales Reviews program was recently improved throughout our twenty-one premise sales districts. Those reviews are made without prior notice to the district to be reviewed, and that district is subjected to a rigorous analysis of its current sales performance, market management, and personnel and skills development. The reviews are conducted by the sales training staff and conducted as recognized and needed, as indicated by current sales results and production efficiencies.

- The Learning Center provides Field Sales Training packages for use as needed by line sales managers in the re-training of their sales representatives. On-site training is also provided by the training staff in the areas, for example, of good salesmanship and contract processing into mechanized systems.

- The Learning Center provides sales aids and promotion material to field sales personnel in the form of brochures, testimonials, usage studies, and motivational material to keep them informed of current trends in the marketplace.

- Most recently, the Learning Center has designed a week-long Comprehensive Management Training (CMT) seminar, using the business-case method, to which all management employees will be scheduled in groups of fifty each. This seminar will begin on August 22, 1983 and continue into the second quarter of 1984.

Department Comptrollers

- Nonmanagment work groups have been redefined in the Data Center Operations for the tour selection processes. The result has been an increase in overall efficiency due to decreased turnover and training requirements.

Department Comptrollers - Security & Claims

- All newly assigned security investigative personnel receive formal training in basic investigative techniques and skills, in addition to on-the-job training. Supplemental training in various management and investigative skills, directed to improving methods, are also offered and, in some cases, is mandatory.

- Selected security personnel have been trained in basic computer security. This training has enhanced our ability to recognize potential risk and more effectively deal with probable or actual problems.

- Claims department designed and applied training in claims adjusting. The course was designed with assistance of legal department. Most claims jobs have been filled by lateral movement of existing Company employees from various departments.

- Effectiveness of training effort is demonstrated by reduced litigation. The number of damage claim related lawsuits was down 22% in 1982.

Department Revenues & Public Affairs

- The Rates and Cost Studies section has organized a centralized clerical group. This allows the flexibility to move the work force to the areas which require additional assistance during the course of rate case activity.

III. INTRODUCTION OF NEW TECHNOLOGY

- Operations Support Systems assist in efficiently handling technical and procedural work. These minicomputers are defined as small task oriented computers normally dedicated to a specific function and remain on-line at all times for their particular function. They are segregated into two distinct types:

    a. Data Processing - programmed to process data for in-house functions regardless of location.
    b. Circuit and Message Switching - These are programmed to do one specific function and allow for mechanization of testing and tracking/monitoring functions previously done manually.

  Many of these Systems are identified in Category I.

- Electronic Switching Systems (ESS) provide central switching of telecommunications in an exchange and has improved the quality of service provided to our customers. In addition, ESS has reduced maintenance expense through higher reliability, and it enables the centralization of maintenance administration through the use of the Switching Control Centers. Several vintages of ESS have evolved from the initial 1ESS in the mid-1960's. They are as follows:

    a. 1/1AESS - The No. 1ESS is an automatic common control type switching system used as a dial-to-dial replacement. The system makes extensive use of solid state devices with rapid operating speed, permitting a relatively small quantity of equipment to perform the control functions. As the No. 1ESS office calling capacity was limited, the No. 1AESS processor was developed to enhance the No. 1ESS. The No. 1AESS processor operates much faster than the No. 1ESS processor and occupies less floor space. The average call processing capacity of the No. 1AESS compared to the No. 1ESS is as follows:

	No. 1AESS	No. 1ESS-SP
Peak Busy Hour Calls	240,000	120,000
Engineered Busy Hour Calls	180,000	85,000

    b. RSS - The Remote Switching System (RSS) was developed to replace small CDO entities in the 200 to 1000 line size. The RSS will be a remotely controlled solid state switched network. A host office would control the RSS over a data link. All of the features available in the host office would be available at the RSS.
    c. 2/2BESS - The No. 2BESS was developed to provide the advantages of stored program control in small to medium line-sized central offices. The No. 2BESS is intended for

initial installations in the 1000 to 5000 line range with growth capacity to approximately 20,000 lines.

d. No. 3ESS - The No. 3ESS is a compact electronic switching system developed for application in the small office market. Maximum capacity is 4500 lines, 11,000 peak busy hour calls. The system required minimal floor space, less than 650 square feet. The system is shipped intact, completely assembled thus reducing installation costs. The system includes maintenance and administrative features which permits considerable remote control capabilities.

e. No. 4ESS - The No. 4ESS is a 4-wire electronic switching system developed to meet the need for a high traffic capacity system that could handle the projected growth in toll traffic. The No. 4ESS capacities are as follows:

Busy Hour Attempts = 670,000

Terminations = 107,500

f. No. 5ESS/5ARSM - The No. 5ESS is the most recent electronic switching system to be introduced. It is a digital time division switching system with the ability to grow across the entire range of local switching offices, thus providing a significant benefit in terms of capital and expense savings in the operation, administration and maintenance of the offices. The No. 5ESS will handle up to 52,000 lines with 8:1 line concentration. The No. 5ESS includes a remote switch module (5ARSM) capability via T1 carrier facilities that provides the benefits of a modern stored program controlled switching system in small switching offices. The No. 5ARSM shares the host 5ESS resources and has a stand alone capability. The No. 5 ARSM will terminate 4096 lines, although the maximum practical line capacity is 3584 installed lines (using a 8:1 line concentration ratio).

- The DMS-10 is a time division (digital) stored program controlled switching system manufactured by Northern Telecom, Inc. The DMS-10 is used in Class 5 offices where the economics justify its use. The maximum practical capacity of the DMS-10 is 6000 lines and 10,000 completed calls.

- Use of digital technology, like the No. 5ESS/5ARSM and DMS-10, will ultimately improve the service quality of the network while providing cost reductions. Conversion of the telecommunications network to an Integrated Service Digital Network (ISDN) will allow introduction of new innovative services. Therefore, use of digital technology will be the thrust of our network construction expenditures into the future.

- The Cosmic Frame System was first placed in operation in 1973. It was the first major design change of modular framework and it

provides an improved frame configuration for preferential assignments. The terminations on the Cosmic Frame can be spread across the entire frame system via a mechanized assignment system. This promotes a short jumper concept, prevents excessive jumper pileup and results in a 20 percent reduction in frame force size required to maintain this frame.

- Initially Centrex was offered to larger businesses. It is a type of private branch exchange in which incoming calls can be dialed direct to any extension without an operator's assistance. Outgoing and intercom calls can be dialed direct by the extension user. There are two types of Centrex, Centrex CO and Centrex CU. Centrex CO is centrex services provided by equiment located on telephone company premises. Centrex CU is centrex service provided by equipment located on customer premises. We are now offering a smaller version of Centrex to the smaller business customer.

- Touch-Tone® capabilities are being provided to step-by-step offices via Teltones M-166 Call Pro. This equipment enables customers to have Touch-Tone® features at an earlier date.

- Local Measured Service (LMS) in today's rapidly changing economic and business environment is more important than ever. For this reason, Missouri has set up an accelerated implementation program for Local Measured Service including all types of offices.

- Digital Carrier Trunk (DCT) interfaces the T-carrier line and the No. 1/1AESS to achieve savings in equipment, floor space, wiring, engineering and installation. By utilizing the DCT circuits, external trunk units and trunk frames are not required.

- Direct Carrier Interface (DCI) with T-carrier features permits direct control of T-carrier channel units by both the No. 2 and 2BESS processors. It merges switching and transmission functions allowing the elimination of 1/1BESS trunk circuits on many trunks using T-carrier facilities.

- Subscriber Loop Carrier System (SLC or SLC-96) system is a subscriber carrier arrangement that can provide single-party, multi-party and coin services. It can also provide many special services including Digital Data System (DDS) dataport by using standard D-4 channel plug-in units. The system uses pulse code modulation for transmission. It is designed to operate over standard or low power T1 repeatered line facilities between the Central Office Terminal (COT) and the Remote Terminal (RT). It provides service for up to 96 message telephone service subscribers.

- Dial Tone First (DTF) permits a caller to dial certain types of calls, such as O, O+, 411 and 911 without an initial coin deposit, thus improving servicing quality.

- AMPS is a dial mobile telephone service. The AMPS concept includes a cellular system of low power radio stations and a mobile switching office. The use of low power radio signals, the ability to have numerous cells in an area and the switching capability of the office combine to significantly increase mobile telephone capacity.

- Plastic T1/T1C Apparatus Cases, a new modular family of T-carrier apparatus cases that can house 25 T1 or T1C repeaters, has been developed. They are of molded plastic construction and are suitable for both aerial and underground installations. Since the case is non-metallic, it is considerably lighter and less expensive than the present cast iron units and can be installed with less effort.

- Digital Facilities are a family of transmission systems capable of carrying many types of communications signals, including voice, digital data, facsimile and other services. All digital communication systems have three common characteristics: (1)the transmission signal is a series of binary digits, (2)different signals are interleaved into high speed streams and separated at different destinations (time division multiplexing) and (3)noise and distorted pulses are replaced by new pulses through pulse regeneration at regular intervals along the transmission line. Typical digital facilities include T1, T1 Outstate and T2 Cable Carrier, and 2,6 and 11 GHz digital microwave radio systems. All of these systems utilize D-type channel banks.

- Lightwave Digital Transmission Carrier Systems such as FT3 combine the line terminating and multiplexing functions into a single unit to reduce the amount of terminal equipment required. This results in significant cost savings, enabling economic prove-in of FT3 on relatively short routes. Cost savings and improved performance result from the following characteristics:

    a. Low transmission losses and higher capacity result in fewer repeaters. The FT3 allows a 100 fold reduction in the number of outside plant regenerators when compared to T1.
    b. Wide bandwidth results in a facility with potential for serving future high speed data and video customers.
    c. Small cable size and weight not only make installation easier, they can defer conduit reinforcement and reduce loading on bridge crossings.
    d. Immunity to electromagnetic interference permits cable routing through electrically noisy environments.
    e. Noninductive characteristics mean no crosstalk, no hazard from electrical shock and secure communications for national defense applications.

- Digital Access and Crossconnect System (DACS) is a new type of digital terminal in the facility network. It is not a direct

replacement for, or alternative to, any single piece of existing hardware. DACS provides the ability to access and rearrange the DS0 channels of DS1 digital bit streams electronically without decoding and converting to analog signals.

DACS deployment presents the opportunity for simplifying facility terminal configurations and reducing costs by, improving facility and terminal utilization, improving testing and maintenance of facilities, simplifying circuit provisioning, creating opportunities for new facility network architectures and improving manageability of the existing network.

- D-Type Digital Channel Banks program began with the introduction of the D1 unit, continued technical improvements resulted in the progressive development of the D2, D3 and the current standard D4. The 48 channel D4 Channel Bank can be configured to interface directly with the T-1 line (24 channels, T1C (48 channels) or T-2 (96 channels). It provides approximately twice the channel capacity as the D3 in the same floor space and will use less power. Due to the technical superiority of the D4, a D1 Channel Replacement Program was established. This program is a proposed procedure for the systematic replacement of D1 Channel Banks with D4 banks which have significantly lower maintenance and plug-in costs.

- E911, the Expanded Universal Emergency Number Service, is operating in our two major metropolitan areas. This nationwide telephone number provide direct access to a Public Safety Answering Point (PSAP) which receives and responds to emergency calls from the public.

Department Network Distribution Services

- Mechanized Loop Testing (MLT) is a computerized system that tests a customer's line on command and displays the results in easy to read format. This system has been installed in Missouri.

The MLT system has provided the following efficiencies:

a. The customer's line can be automatically tested and results displayed to the Repair Service Attendant (RSA) at the time the trouble report is taken from the customer. The test results are also printed on the trouble report.
b. Retests of the customer's line can be made at any time to verify, for example, that the trouble has been fixed.
c. MLT permits testing over an expanded geographical area. Any terminal connected to an LMOS processor can use MLT to test any customer line served by that processor or served by any other interconnected processors. For example, a set of interconnected processors provide

LMOS coverage for Southwestern Bell exchanges in the 314 area of Missouri. An LMOS terminal in Cape Girardeau can test a customer line in Poplar Bluff with the same ease, speed, and accuracy that can be accomplished from a terminal in Poplar Bluff. Consequently, the number of geographical repair dispatch centers have been sharply reduced as this new testing method permits wider coverage from a single center.

- Mechanized Loop Testing - Version 2 (MLT-2) provides further enhancements and cost reductions due to advancing technology. MLT-2 has permitted the installation of mechanized testing in small rural Southwestern Bell exchanges as well as enhancements to all the other exchanges. MLT-2 also provides an interactive testing feature wherein voice contact can be established with a repairman in the field or a customer in his home while testing is in progress. The addition of MLT-2 permits the complete elimination of the manual test board.

  Elimination of manual test boards has made possible consolidation of numerous maintenance centers (MC's). To date 22 MC's have been consolidated into only 7. Current plans call for an additional consolidation of 8 MC's into 3 before the end of the 1st quarter 1984. Thus we will have 10 centers performing the functions previously done by 30. This consolidation has meant increased operating efficiencies as well as a force reduction.

- Southwestern Cable Analysis Network (SCAN) is a computerized system that utilizes existing automatic line insulation test equipment in each central office which we have implemented.

  This system supports the timely dispatch of repair forces to problem areas that are identified by early morning test results or results on demand later in the day and is accomplished as follows:

  a. The test results which are sensitive to weather conditions are accumulated normally in the early hours of each morning in the SCAN computer. This information passes to the LMOS host computer where it picks up terminal address information from the customer line records and prints out on an existing LMOS printer in the appropriate dispatch center.
  b. Whenever a preset threshold number of troubles is detected in a cable complement, an Emergency Report is immediately printed out in the dispatch center. This permits rapid detection of multiple cable trouble.
  c. The SCAN system permits early dispatch of cable repair forces to the problem areas often before customers begin reporting the problem.

- Program SCAN Testing (PST) is an adjunct to LMOS that utilizes MLT. It permits a dispatch center to establish a list of telephone numbers in LMOS that will self test and retain a record of

abbreviated test results. The list with its recorded results can be displayed when desired. Likely candidate telephone numbers for PST are new installs, telephone numbers experiencing repeated troubles, and reported numbers that test O.K. PST allows us to automatically test a preselected group of numbers without making time consuming individual tests. It has improved maintenance center productivity as well as customer service.

- The Southwestern Bell support staff in Missouri is always alert for new developments in state-of-the-art technology regarding tools and test equipment. A recent example of this is introduction of the Western Progress Model 8000 which is $230.00 cheaper per test set. Purchases of model 8000 test sets rather than the 145A during 1983 have resulted in a savings of over $22,000.

- A computerized cable pressure monitoring system which provides the status of our cable air pressure system, thus eliminating the need to dispatch personnel to manually check the status of air pressure contactors, is being installed. It provides an alarming system that can be used to alert the Cable Maintenance organization to cable problems and also to enable them to approximate the location of air leaks prior to a field visit. Many times we are able to fix problems before they are detected by our customers or before a minor problem becomes serious.

  The Cable Pressure Monitoring System is currently being implemented in 50 wire centers throughout Missouri. The process of manually determining the location of cable air leaks is very labor intensive in today's environment. This mechanized air pressure analysis system will provide significant savings in labor hours by providing the ability to more directly determine the location of cable air leaks prior to the dispatching of field personnel.

- Fiber Optic Cable due to its small size is being placed in the local loop network in congested conduit runs to eliminate costly conduit reinforcement. Fiber Optic Cable will also provide high grade digital services to subscribers.

- Pair Gain Systems (PGS) are electronic systems that allow a small number of wire pairs or optic fibers to serve a large number of customers. For example, use of Subscriber Line Carrier 96 (SLC96) provides 96 customer channels while using only 10 cable pairs. It can also be used to provide 48 four wire digital special service channels. Utilization of PGS defers and sometimes eliminates the need for costly cable route reinforcement. PGS can also be used to provide digital services to subscribers.

- Modular splicing technology is now used extensively to cut costs and improve service. Twenty-five pair modules are used to splice aerial, buried or underground cable. These modules provide the ability to perform rearrangements twenty-five pair at a time by unplugging and replugging modules. Newer cable plant can be rearranged in a wireless manner because of the ability to plug - unplug. The test sets

used when splicing new cable determine both the existence of defective pairs and defective wire joints as splice is being made. This insures a trouble free cable. The test sets used when rearranging cable plant maintain lines in service on a 25 pair at a time basis and insure against reversal of tip and ring conductors. This technology provides the ability to pre-connectorize cable in a factory or shop environment thereby reducing the time and cost required to splice in a field environment. It provides a trouble free method for clearing cable ends and means that fifty percent of the splicing work is already completed if the cable is extended in the future.

- Our buried out-of-sight cable policy eliminates above ground splices. It provides total out-of-sight facilities in urban/suburban areas with pedestal and hard count terminals in rural areas. Splices are encapsulated using heat shrink splice closures. This policy reduces potential for cable damage due to weather, sunlight, vehicles, workman activities, etc. Filled core cable is utilized, it provides a more reliable facility for future application of loop electronics such as Subscriber Line Carrier 96 (SLC 96). This policy reduces cable maintenance cost and eliminates the major source of cable pair problems by removing the above ground sheath opening. It also eliminates the need for various sizes and types of cable pedestals and permits the use of 4 inch pedestal to house terminals in rural areas as standard. This reduces pedestal cost and inventory of materials. The buried out-of-sight policy thus improves service while reducing costs.

- A Pre-Term method is now being used in many areas where new distribution cable is being placed. Pre-Term involves pre-splicing of service wire into distribution cable at Western Electric including the complete testing of cable, service wire and splices prior to field delivery. Waterproof buried closures are provided eliminating all pedestals and above ground splices which eliminates needs for expensive splice pits to splice service wire to cable. Two or more cable pairs are dedicated to each living unit. These cable pairs are cut dead to the field which minimizes the extent of service outage if cable is cut or damaged. When using the Pre-Term method, cable splicing is limited to reel end or branches. Pre-Term can be placed in trench, plowed, pulled through bores, pipe, etc. Unused drops can be stored in closures or buried and the location marked with an electronic cable marker for future use.

- Connectorized Cable (Conecs) is factory pre-connectorized cable primarily for use in the underground. It permits every other splice to be prepared at the factory and be plugged together in the field reducing construction intervals and manhours to complete field splicing. It also reduces the time that cable is in the 100.2 account (under construction) as well as job costs on 900 pair and larger underground cables.

- A new method of pre-connectorized repair of cable has permitted faster restoration of cut cables at a lower cost. Short lengths of pre-connectorized aerial or buried cable are available for repairing cut or damaged cable. Using this method on-sight sheath preparation to

repair cable cuts is reduced by 50% and wire joining is reduced by 50%. Restoral of out-of-service conditions is done considerably faster and easier. This method assures that cable is readily available for repair projects and that repairman always has all materials needed to repair damage. It eliminates purchasing and accounting for cable on many individual orders, thereby eliminating the related costs.

Department Operator Services

- The Traffic Service Position System (TSPS) uses electronic technology to mechanize to the extent possible all operator handled calls. This electronic system replaced the manual cordboards and has greatly decreased the number of operator assisted calls handled by a position, thus reducing the required operator work force.

- Automated Coin Toll Service (ACTS) provides a means of automating functions of the operator on most coin paid toll calls routed through the TSPS. This feature utilizes the TSPS for call rating and timing with the station signaling and announcement subsystem providing announcements to customers and counting coins. The ACTS capabilities are also used to provide notification and time-and-charge quotations to noncoin customers. The implementation of ACTS reduced the amount of operator work time required to furnish toll service.

- Automated Calling Card Service (aCCS) is a customer dialed station calling service whereby the customer provides billing information without operator intervention. aCCS automates those calls originating from Touch-Tone® sets and reduces operator requirements for those same calls from non Touch-Tone® sets. It provides operator savings through the elimination and/or reduction of operator handled Credit Card, Collect and Third Number Station-to-Station calls. Therefore both operator expense savings and equipment savings are realized.

- A companion feature of aCCS is Billed Number Screening (BNS). The BNS feature allows customers to automatically deny billing of all conventional collect and/or third number calls without actually receiving the individual calls. BNS provides operator worktime savings by reducing the called party rejection on collect calls and by decreasing the need for operator verification on some third number calls. The additional fraud control provided by BNS reduces fraud expense in Missouri.

- Mechanized Intercept/Automatic Number Identification (MIS/ANI) provides number change and disconnected station information. In an MIS/ANI environment, a computer responds to the customer inquiry. Operating expenses continue to decline as a result of continued

conversions through the reduction in operator handled intercept calls.

- Current plans are to add an Autio Response System (ARS) to the Missouri Directory Assistance #5ACD offices in 1984. The ARS will relieve Directory Assistance operators from having to report telephone number information to the customer directly. Rather, the ARS will provide a computer voice synthesized response to the customer. Consequently, operator work will be reduced. The potential savings will result in a requirement for fewer operators at each site involved.

Department Business, Residence and Public Services

- Coinless Public Telephone Service (CPTS), or Charge-A-Call service has allowed our customers to place calls on a credit card, third number billed or collect basis with no coin cash involved. The station used to provide this service is relatively inexpensive and easy to maintain. Missouri has installed over 2000 of these phones throughout the state since 1980. This service has reduced our initial capital investment and lowered our maintenance expense while providing a growth in revenues.

Department Directory

- Bell/GRAFX is a publishing system not yet on line, but scheduled for introduction in 1984. It is a fully mechanized system for storing and holding art work for use in the Graphics Center. It is one of the state of the art directory systems, developed for Bell directory publishers and funded under non-license agreement by SWB, among others. It is one of the directory systems AT&T is required to transfer to SWB as a result of divestiture.

Department Comptrollers

- MASS storage devices were installed. This is an IBM developed hardware subsystem combining the advantages of magnetic tape with disk technology producing a storage medium capable of high speed access to large amounts of data.

- Virtual Terminal Access Method (VTAM) technology was installed which allows a single terminal to access programs running in several different IBM computers. This reduces terminal equipment requirements for Data Systems as well as communications front-end requirements in the Data Center.

- The Bell Administrative Network Communications Systems (BANCS) software was installed which allows a single terminal to access programs running on different IBM computers and also computers made by other manufacturers (i.e., UNIVAC, Digital Equipment Corp.).

- Installation of a new BANCS processor, a CYBER 1000-2, to replace the two existing processors which primarily serve the St. Louis SORD and Pre-BOSS communities reduces the cost of providing on line network services.

- The replacement of IBM 168/370 and 3033 CPU's with 3081's and of STC disk technology with IBM 3380's has permitted the Corporate Data Center to increase its workflow dramatically with minimal additions to operating personnel.

IV. OTHER COST REDUCTION AND REVENUE STIMULATION PROGRAMS AND PROCEDURES

Department Network Distribution Services

- During the late 1970's, answering of repair calls in Missouri was consolidated into two Centralized Repair Service Attendant Bureaus (CRSAB's). Previously this function has been performed in over two dozen repair service bureaus throughout the state. The CRSAB is a specialized work group which is able to perform this function more efficiently than many smaller locations.

- The Centralized Audit, Parameter and Error Reconciliation (CAPER) center administers the data base for the Loop Maintenance Operations System (LMOS). Prior to 1982 there were two CAPER centers in Missouri. Consolidation of these centers into one center in St. Louis has allowed us to reduce two management and seven clerical jobs. Consolidation has also permitted a reduction in the total number of LMOS terminals required to perform the CAPER function allowing these terminals to be used elsewhere.

- Implementation of the Unrecovered Telephone Equipment Charge (UTEC) tariff in conjunction with mechanization of accounting for left-in telephone sets has allowed us to significantly reduce the number of Equipment Left-In (ELI) clerks. Previously there were 11 full-time ELI clerks in the state, now one person does this function on a part time basis.

- We are constantly striving to lower our overtime costs through better force scheduling, careful appointment of service orders and repair visits, and training to increase productivity. In the first six months of 1983 Network Distribution Services used 24,384 fewer overtime hours than in the first six months of 1982.

- As a cost reduction measure, we have discontinued the production of the Sorted Trouble History microfiche. The information found on this fiche is available, arranged in a different manner, on another microfiche file. Discontinuance of this file has resulted in estimated production and distribution savings of several thousand dollars yearly.

- We are realizing significant savings through the Defective Equipment Replacement Program (DERP) and the Direct Delivery Service Program (DDS). These programs allow customers with defective telephone sets to return them to a Bell Customer Service Center for replacement (DERP) or to have a new set delivered to their home with the defective set to be mailed postage paid back to us (DDS). Cords are also mailed directly to customers with worn or damaged cords. In 1980, DERP saved Missouri an average of 7000 repair visits each month. Each year the number of repair visits saved has increased. In 1983, with the introduction of products such as

converters to modularize non-modular outlets which allows more customers to participate in DERP and DDS, Missouri is saving an average of 15,395 repair visits each month through July of this year.

- We have implemented a program to locate protector units on the outside of residences and small businesses when possible. The purpose of this program is to minimize the number of redispatches required when customers are not at home when the repair technician visits. Difficulty in obtaining access to a customer's premise may prohibit clearing of a case of trouble on a first dispatch if the protector is located inside. Protectors are now mounted outside on new jobs or when the unit must be replaced.

- The Connect-Through Plan "No Break Ct" Policy provides reserved conditions of Outside Plant facilities to a particular customer service location which result in the following benefits:

  a. Reduce facility "search" time
  b. Reduce the time required to complete both inward and outward movement service orders
  c. Eliminate or minimize break field conditions
  d. Reduce installer caused troubles by decreasing the amount of activity on individual cable pairs
  e. Reduce field visits to customers premise
  f. Decrease Installation work load.
  g. Reduction in drop rearrangements expense
  h. Better utilization of Dedicated Inside Plant
  i. More timely and accurate identification of relief problems

- The Work Authorization Management System (WAMS) is a computer base program developed in the second half of 1982. The program was integrated with manual administrative functions for job scheduling, print posting operations and interdepartmental reporting. Initial phase one operations were fully implemented as of January 1983 with a mechanized data base for all work authorizations, providing tracking and reporting requirements at all levels of management. Phase two is scheduled for implementation September 1983, to mechanize functions of the Cable Transfer Administration Plan (CTAP) and job scheduling. Benefits of this system are:

  a. Routine Work Authorization Backlog reduction 3551
  b. Specific Estimate Work Authorization Backlog reduction 230
  c. Overage Routine Work Authorization Reduction 3256
  d. Overage Specific Estimate Work Authorization Reduction 82
  e. Improved reporting efficiency and accuracy at all managment levels
  f. More efficient and faster work authorization reconciliation
  g. Rapid identification of problems and roadblocks
  h. Automated tracking of information and problems

i. Better management of individual work authorizations

- This computer base program was developed and implemented in existing Time-Share computer facilities without any addition in personnel requirements.

- The Strategic Planning Guidelines for the Network is a methodology to integrate all departmental functions in the planning and implementation of total network facilities provisioning of telecommunication services utilizing the most appropriate technologies available. Benefits of the methodology are:

  a. Improved total Network facilities planning
  b. More competitively priced services
  c. Defined facilities provisioning objectives
  d. Better utilization of existing Network facilities
  e. More efficient application of new technologies
  f. Better interdepartmental coordination

- Long Range Outside Plant Plan (LROPP) is a methodology to provide a fully documented long range fundamental plan. It establishes the most economical, ultimate wire center configuration. LROPP provides the direction based on overall company objectives, that all future facilities rehabilitation and relief projects should take to evolve into the ultimate configuration.

- Feeder Administration (FA) is a methodology for on-going administration, current planning, design and implementation of specific relief projects for the loop network feeder facilities. FA is the vehicle to economically evolve the loop network from existing to ultimate configuration base on the Long Range Outside Plant Plan objectives.

- The Facility Analysis Plan (FAP) is a methodology for reducing outside plant loop network operating costs. It includes procedures to identify and track the most costly facilities by geographical area, establishes priorities for detailed rehabilitation and monitor the results of implemented rehabilitation projects. The Loop Activity Tracking Information System (LATIS) and the Loop Plant Improvement Evaluation (LPIE) are the major automated support tools for this methodology, which provide the following benefits:

  a. Reduces overall loop plant operating costs
  b. Improved rehabilitation project prioritzation
  c. Improved short and long term analysis of problem areas
  d. Faster and more efficient post rehabilitation project analysis
  e. Facilitates rehabilitation plus growth project combination economical feasibility

- The cable management plan is a computer based program which provides for centralized tracking of cable, cable stubs and load coils.

Use of the plan has aided management in accomplishing the following:

a. Reduction of monthly cable inventory investment levels.
Example - Investment Level

July 1982	$2,396,234
June 1983	$1,493,457
Reduction	$ 902,777

b. Reduction of monthly carrying charges on cable inventories.
Example - Carrying charges

July 1982	$ 78,012
June 1983	$ 23,185
Reduction	$ 54,427

- Other areas of inventory control include:

  a. Reduction in the number of pole sizes and classes stocked.
  b. Reapplying surplus material to other locations.
  c. Centralization of cable and pole yards.

- We will implement the Force Management System-Network (FMS-N) in the September/October, 1983 time frame. FMS-N works in conjunction with the Three Tier SORD (Southwestern Order Retrieval Distribution System) and mechanizes the distribution of service orders. FMS-N will automatically group service orders into logs for installation technicians and route the logs to the printer at the proper work center. This will eliminate the time consuming clerical process of logging service orders and allow us to close our originating installation control centers. Plans are also being made to consolidate the completion installation control centers into the Maintenance Centers (MC's) to further streamline the operation.

- Consolidation of Loop Assignment Centers (LAC's) has resulted in improved service as well as a cost savings. This consolidation has meant a reduction in LAC personnel while increasing our flexibility in scheduling LAC coverage. Work functions have been combined and we have realized improvement in supervisory coverage. Consolidation of LAC's has also caused a reduction in the number of computer terminals and circuits required.

- A Cable Transfer Administration Plan has been implemented in Missouri. It provides an organized, systematic approach for coordinating and scheduling cable and line transfer activity. The purpose of the plan is to maximize transfer efficiency while reducing roadblocks and customer troubles. The plan calls for participation by all involved work groups (e.g., construction, engineering, frame, special services, etc.) with definite milestones set for each activity.

- Modification of Western Electric cable reel returns has resulted in a cost savings for Southwestern Bell. Cable shipped on cable reels from the cable factory requires that the empty reel be returned to the factory. Reels from many locations are consolidated to achieve transportation economy. Western Electric has agreed to receive all reels at the closest service center and give instant return credit. A flat fee per 100 weight is then charged for the handling and transportation to the Western Electric factories. Empty reels are picked up by SWB supply forces as new cable is delivered. The reels are then returned to the closest Western Service Center for credit. This eliminates the previous problems of reconciling credit discrepancies. Credit is received at the service center as opposed to previous credit for return when delivered to the cable factory. It has meant a major reduction of empty reels in the field and a reduction of dollars invested in cable reel inventory.

- A policy which limits the number of cable sheaths entering a splice to 2 in and 2 out has been established. The purpose of this policy is to control the size of cable splices, closure requirements and service affecting problems associated with large splices. It also reduces the level of difficulty in performing splicing activities. The two cables out may be load pots, cable stubs, or distribution cables. This policy permits faster splicing with fewer workman caused troubles following a splicing operation.

- Condemning of existing splices is a policy designed to minimize technician caused trouble associated with normal construction activity. Basically it is the freezing of any future activity (e.g., cable rearrangements) in an existing splice known to generate numerous cable pair failures if re-entry is attempted. Correction of the condition would require extensive manhours and expenditures. The present condition is not causing service problems and expenditures to correct are unwarranted. Permanent records are noted to identify these splices.

- Pre-assembly by Western Electric of all component piece parts for building entrance terminals is now standard. This includes all sizes required including frame mounted assemblies. All cable pairs are either terminated on blocks or connectorized for quick field installation. Transportation on larger installations is from the Western Service Center to the job site. This has eliminated the ordering, stocking, transportation and on site assembly of many piece parts as well as insuring a uniform quality product. It also reduces response time by eliminating a major portion of manhours required at the job site.

- Facility Splices are now used to provide an interface between feeder and distribution cable facilities. An appropriate size cable stub is spliced into the feeder cable/s and is terminated in the facility splice. Additions of distribution cable facilities or rearrangement of these facilities is performed within the facility splice. The facility splice is a non-presurized splice which eliminates the need to place supplemental air sources on pressurized cable plant as in

underground cables. All cable pairs in the facility splice are in modules in numerical pair sequence. Once identified or tagged no further pair identification is required. Rearrangements can be made 25 pair at a time without service interruption. This eliminates the previous need for stubs between feeder cables to utilize cable pairs in distribution cable facilities. It also controls the size of splice and splice closure required on feeder cables. In addition it eliminates most requirements for reentry into feeder cable splice thereby eliminating cable pair and pair insulation problems in those splices. The use of facility splices has proved to be a cost effective means of improving service to our customers.

- The conformance testing plan provides a methodology for testing new and existing subscriber cables upon completion of newly constructed jobs. This plan established criteria for correcting design, existing and new defects in our outside plant. The result is an improved level of service. During the fourth quarter of 1982 71,996 cable pairs in Missouri were tested under this plan.

- Pre-Connectorized Serving Area Interfaces are now used reducing cable splicing time. Western Electric now furnishes interfaces equipped with terminal blocks mounted in the cabinet and with pre-connectorized cable ends. The old cabinets required ordering of individual piece parts to be assembled on site. Previous terminal blocks were equipped with stubs necessitating a buried splice outside the closure in a splice pit. The present configuration reduces both placing and splicing manhours required. Conecs (Connectorized Cable) cable can be ordered and plugged into the pre-connectorized terminal blocks.

- Fiber glass closure pads are now used instead of concrete pads. Large above ground cable closures require mounting pads which initially were constructed of concrete either pre-cast or made on-site. A General Trades supplier now furnishes an equivalent product of fiber glass construction weighing 80 pounds or less. Use of this product has reduced costs and the coordination necessary to install the pads.

- Many of our cables in areas of new construction are now placed in a joint trench with other utilities such as Union Electric or Laclede Gas. This reduces our cost to place the cable as well as insuring that the cable is at a greater depth to give increased protection from being cut. It also provides for out-of-sight plant and in most cases insures the existence of a service wire to a new home before occupancy.

- A system of palletized reels of cable has resulted in cost savings. Western Electric Service Centers receive cable from the factory. The Service Center then inspects and stores the material, reordering any damaged material and processing the necessary claims. The Service Center stages material (warehouses) and sequence ships it to designated job sites on requested dates. Cable is delivered on palletized reels loaded by Western Electric who bills for the material

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when delivered to jobsite and handles the empty cable reels. No billing for cable reels is involved and the accounting process involving cable reels is eliminated. This system increases the volume of cable placed per day by reducing field handling of cable reels as well as requirements for vehicles and cable reel trailers to transport the material.

Department Network Switching

- Deload Plans to Avoid Capital Expenditures - Deloaand plans in the Springfield area allowed the 4ESS machine to be deferred 1-1/2 years. Rehoming one-plus traffic to Moberly, Kirksville and Chillicothe has also allowed us to defer capital expenditures.

Department Network Planning

- Centralized Storerooms allowed the Company to reduce personnel required to maintain inventory and reduced field investment in inventory and supplies. Storerooms have been centralized to areas exhibiting the most inward movement activity thus allowing stock to be concentrated where most needed.

- Local Switch Replacement Planning (LSRP) system performs evaluation and scheduling functions for each defined building replacement plan. This relieves the planner of substantial data manipulation and computations required by manual economic analysis of replacement plans. The planner is free to be productive in the application of knowledge judgment and skill needed for effectivce modernization planning.

- Capital Utilization Criteria (CUCRIT) is a general purpose economic study tool. It is used to evaluate the economics and financial effects of construction alternatives. CUCRIT calculates the net present worth of expenditures, modified rate of return, net present value and discounted payback period. In addition to the economic analysis, a financial evaluation comprised of an incremental income statement and annual return on net average investment is produced. CUCRIT can also evaluate owning versus leasing decisions.

- Long Range Switching Studies (LRSS) is the standard tool for the development of fundamental plans for the toll switching system. The purpose of this system is to aid the Company in estimating the network needs from five to twenty years in the future.

- The MARK IV system is a tool to help meet daily information needs. Three different mechanized applications use the MARK IV system. They are Southwestern Construction Program Administration System

(SWCPAS), Private Branch Exchange Wiring List (PBXWL) and Mechanized Information Retrieval Aid (MIRA). SWCPAS contains all information on job record sheets and it can be formatted to meet specific applications. PBXWL contains all vendor equipment wiring list information and all customer related information. MIRA provides access to the TIRKS data bases which contain assignments on carrier systems, cables and termination and signalling equipment as well as a physical description of the associated facility. All three applications provide efficiency in information retrieval and report formatting.

- Monthly Operation Report allows for the tracking and analysis of construction expenditures on a monthly basis. Through the use of Southwestern Time Share System, each state has the ability to record, compare and analyze actual versus budgeted expenditures, project future expenditures and retrieve historical data. The mechanized data base provides standardized monthly output reports with the ability to program for a particular application. This tool provides flexibility and efficiency in the management of the construction budget.

- Custom Calling Services are a group of features which are optional to basic telephone functions that allow both residence and business customers telephone services tailored to their needs for a minimal fee. The various custom calling services can be purchased as a package or individually. Those options have increased revenues along with providing our customers more specialized telephone usage.

- Facility Planning Systems (FPS) is the standard Southwestern Bell mechanized planning tool for current planning. FPS is used to summarize metropolitan and outstate facility and equipment requirements by allocating forecasted demands to predetermined designs. It is a current planning tool which means that it covers a five year time frame. (Current Year to Current Year +4). The system does not contain cost data or economic analysis capability.

- Construction Budget Process was initiated for the purpose of administering, on an ongoing basis, the capital program. This process is constantly being upgraded to assure the best possible methods of compiling, analyzing and managing construction expenditures. It is through this management process that all planning efforts of all segments involved in the Construction Budget finally culminate and result in economic plan additions which meet customer service requirements.

This activity evolves around maintaining individual records on each job as outlined by the Joint Practice 80 routine. This job tracking is proposed to be upgraded in the 3rd or 4th quarter, 1984, with a new system called Construction Management, Analysis and Provisioning System (CMAPS).

Department Operator Services

- The Financial Performance Measurement Plan was designed to identify and track the profitability of each TSPS and Directory Assistance system. Both revenues and expense categories are considered in this measurement. The plan provides detail on expense categories and is a very effective tool for use in office management. It also establishes the accountability for the efficient operation and optional profit contribution of each system.

- The Directory Assistance Charging Plan furthers the concept of having the customer who used the service pay for it. Upon implementation of the charging plan, the expected 50% reduction in call volumes was experienced. The Operator Services organization realized force reductions which translated to expense savings as a result of this plan.

- As a result of the aforementioned operational systems and mechanization projects, Missouri Operator Services has and continues to consolidate and close offices in order to improve its managerial efficiency. Nearly 20 remote cordboard offices were closed as a result of TSPS and DAS/C mechanization. A reduction in overhead expenses also resulted.

- Within Missouri, two Message Investigation Centers (MIC) have been located at St. Louis and Springfield to investigate unbillable toll messages, customer claims and toll fraud. Consolidation of these two MIC's will complete in September of this year. Force reductions were primarily due to:

    a. The reduction in calling card fraud messages due to the implementation of the Billing Validation Application (BVA) feature of automated Calling Card Service. Collect to coin message rejects also have decreased due to the BVA.

    b. The reduction in Bill-to-Third Number pre-billing rejects and customer claims due to the operating practice change initiated 4/1/83 to require positive acceptance of charges prior to completion of Bill-to-Third Number calls from public telephones.

- Further improvement in MIC productivity will be realized in 1984 with the introduction of Phase II of the Mechanized Toll Error Correction System (MTECS). This is a computerized system which will integrate the message investigation and fraud control activities using a data base and access terminals rather than the manual investigation of EDP tickets rejected in the billing process.

- Further plans for fourth quarter 1983 include the consolidation of the two TSPS systems in St. Louis to one system by using new technology to expand the computer real time capacity of only one of the systems with a newly developed 3B processor. The effect will be a significant reduction in capital investment required to provide service both short and long term.

- Missouri is currently the host state for the following multistate operations:

  a. Hotel Billing Information Center (HOBIC)
  b. Mechanized Intercept System (MIS)
  c. Data Base Administration Center (DBAS)
  d. Message Investigation Center (MIC)
  e. Mechanized Intercept System/Rate Quote System

  A procedure has been put in place in Missouri to insure that compensation is made for services that we provide for the customer of other states. While savings are realized by each state through this centralization, the proration of expenses and benefits to the served states insure that Missouri rate payers do not pay for calls generated outside Missouri. Billing amounts are based on studies of volumes or usage in each system. A monthly transfer is then prepared and processed through Comptrollers to credit Missouri as the host.

- The centralization of Rate and Route traffic in Morris, Illinois also results in savings for Missouri Operator Services. The Rate and Route calls can be handled more efficiently in a mechanized large team environment vs. small operator teams in each of the individual states. Missouri Operator Services is billed quarterly by Illinois Bell for providing this service.

- Control of travel and other miscellaneous expenses is stressed in Operator Services. Conference calls are used whenever practical to eliminate travel expenses. When travel is necessary, employees are advised to use car rental agencies and lodging that offer the best contracted corporate rates. When possible, employees schedule meetings in such a way as to eliminate overnight lodging and to utilize discounted airfares. We have restricted the quantity of employees that attend each meeting and reduced the number of conferences.

- To compile TELSAM results, several cost efficient measures have been introduced:

  a. A computerized feedback report that reduces the paper printing and shipping cost required by the previous printed report.
  b. Computerized reports eliminate a ten to fifteen day delay in receipt required by printing.
  c. Development of a batching program that facilitates the retrieval of TELSAM results taking advantage of the low cost overnight computer usage time.

d. Reduction in the number of required interviews.
e. Questionnaire revised to eliminate generalization and furnish more detailed feedback.
f. Computerized TELSAM analysis reports.

Department Centralized Services

- The Investment Tax Credit (ITC) program resulting from the Revenue Act of 1978 and the Energy Tax Act of 1978 has contributed to significant savings for the customer. Specified items of new building construction are candidates for tax credit. By performing detailed analysis of all new construction, all allowable credits are claimed for federal tax deductions.

- Our centralized Furniture Warehouse Facility results in lower furniture costs, improved furniture reuse applications, maximizes available office space utilization, and minimizes book investment in the furniture account.

- There are significant savings associated with large scale unit cost contracting in the Real Estate and Architecture organization. This is separate and apart from the common practice of competitive bidding of large construction contracts. In the day-to-day business of handling miscellaneous office rearrangements and repairs, the same generic type trade services are required. Over a period of time, we have collected a history of type and quantity of services. We are, therefore, in a position to bid out a unit cost contract for generic trade service.

- The Real Estate and Architecture organization manages two programs that contribute to cost savings in our physical plant.

  a. The Building Energy Management and Redesign Retrofit (BEMARR) program entails an analysis of previously installed building equipment to determine if there is a short term payback for modernizing the equipment. The industry involved in the design and manufacturing of items such as boilers, air conditioning chillers, fan motors, etc., has advanced the technology as a result of national energy consciousness. The BEMARR program calls for a comparison of the cost for installation of the state-of-the-art equipment versus energy savings. If there is a short term payback, the building equipment is retrofitted.

  b. Open space planning has been the standard for Missouri Operations for a number of years. Open space planning is a building interior design concept that minimizes floor-to-ceiling building construction through the use of

free standing furniture. There are cost savings associated with this program through better utilization of floor space.

- In every major equipment or administrative building, there are integral electrical and mechanical support systems. Typical of these are air conditioning chillers and air compressors, boilers, pumps, motors, power distribution panels, etc. There are two philosophies for maintaining these types of units - (1) preventitive maintenance or (2) repair on breakdown. The most cost effective method is preventitive maintenance. Our attempts at mechanized scheduling of preventitive maintenance have proved to be very effective. Scheduling the regular maintenance of these building support systems through a mechanized program, has resulted in minimal equipment breakdown.

- In the first quarter of 1983, the Building Management organization implemented a Building Operations Control Center (BOCC) for the State of Missouri. Through the BOCC all building maintenance resources can be dispatched to needed work locations. This is in lieu of having dedicated forces to a specified building. This allows for maximum utilization of available resources. More buildings and building equipment can be maintained and operated with fewer people.

- A program currently underway that will produce significant savings is Vehicle Scheduling Optimization (VSO). Currently all metropolitan St. Louis and Kansas City media Distribution is handled "in-house". Intercity media distribution is handled through a contract vendor. Through a centralized and mechanized modeling system, all delivery services, not only media but also materials, can be accomplished "in-house" and through the most cost effective route.

- Fuel economy is an important factor in our overall fleet selections. Our fleet administrators acted very prudently and wisely by downsizing the company's fleet. We purchase fuel-efficient, cost-effective compact and sub-compact vehicles. Missouri established a Miles Per Gallon Program as a way to conserve energy and reduce fuel costs. During short "Tailgate" meetings, we review specific MPG results on an individual vehicle basis.

- A PSI (Pressure per Square Inch) Decal Program is a company policy that requires placing a PSI Sticker on the wheel-well above each tire. The correct PSI helps the drivers to maintain maximum tire pressure which reduces drag and saves gasoline.

- We used the "Driving Difference Program" as a tool to improve the users' driving techniques. The program consists of a film, posters, MPG calculators, and short "Tailgate" meetings. We covered unnecessary vehicle idling, overloading, topping off, correct tire pressure, and proper braking and acceleration.

- We used the "Take Off Weight Program" to improve fuel economy. We reduced 100 pounds of weight from each vehicle which resulted in a .6% gain in fuel economy.

- The motor vehicle control center concept is in service in Kansas City, Missouri. All bill payment and motor vehicle repairs are handled for all vehicles by this operation. Centralized bill payment enables the field user supervisors to devote their time in providing service. Centralization of the maintenance relieves the field supervisor of that responsibility. Tentative plans are currently under consideration to implement this concept in St. Louis, possibly sometime in 1984.

- To develop a specialized material management organization, Missouri established a Material Management district. This district has the responsibility of providing to the user organizations materials and supplies in the most economic way to meet customer service objectives. The district has provided the expertise required to efficiently procure, warehouse and distribute materials and supplies.

- Missouri aggregated its station apparatus and associated materials and supplies into central storerooms to reduce the number of stocking locations. Central storerooms have enabled the investment in material and supplies to be reduced. They have reduced the need for human resources and they have provided better control over the field investment.

- The Missouri State Forecasting operation was reorganized to form a third group entitled Computer and Data Support (C&DS). The C&DS group provides complete data services for the Administrative and Design Entity forecasters located in St. Louis and Kansas City. These services include data collection, analysis, and input to various mechanized systems. They also develop, test and implement computer software as requests arise. This reorganization of forecasting personnel provides the optimum usage of our resources.

- Computer and Data Support forecasting personnel in Missouri have designed numerous computer applications which daily eliminate many tedious hours of manual calculations for the forecaster.

- A Mechanized Forecasting System developed by Administrative forecasters provides computer software to generate, test and analyze forecasts of telephone revenues, gain and movement. The system provides an efficient and consistent approach to forecast preparation and documentation of methods used. Use of the system reduces both on-line computer costs and hours devoted to forecast production, while enhancing forecast analysis.

- A mechanized data analysis, reporting, and tracking system created by Administrative Forecasting personnel allows the computer software to report and analyze the most currently available actual data for telephone revenues, gain and movement. The system provides both standardized display formats and analysis aids. Use of

the system saves forecasters time, results in consistent data analysis methods and informs management of the current status of revenues and demand components of business operations.

- Mechanized Wire Center Area Forecast Program was adopted which reduced a three-step operation to a one-step operation and increased product time from five days to one.

- The Design Entity Monitoring Report is now being utilized by the Forecasting group to eliminate manual posting and increase product time from five days to one.

- Adopted a mechanized demographic report called ONSITE, which provides a considerable amount of data available on short notice.

- The Centralized Services Planning & Budget Analysis district is proposing the purchase of a micro-computer which would cut down on toll cost incurred from accessing systems via dedicated circuits. This would be accomplished by down-loading data from existing systems (i.e., STS) to the micro-computer for manipulation and analysis. This micro-computer would also improve office productivity by use of its word processing capabilities and would increase flexibility in producing ad hoc reports for upper management.

Department Business, Residence and Public Services

- Because SORD, PreBOSS and some other on-line computer applications involve sizable networks, we have developed and are testing an on-going program to monitor terminal and circuit utilization. This program provides regular reports to management on the transaction volume and total utilization time for each terminal. This information helps us ensure efficient use of the data network and minimize our future investment in terminal gear.

- For many years, we have maintained Mileage Bureaus in St. Louis and Kansas City, equipped with maps and tools to measure and quote both local and interexchange mileage. Recently, we initiated using a computer to measure interexchange mileage. We consolidated and streamlined our Mileage Bureaus, and combined this function with other operations. Now all mileage quotations are provided by a centralized source in St. Louis, with a net saving of two employees.

- When the two Data Processing Centers were consolidated in St. Louis, a possible delay in receipt of important collection referral notices in western Missouri cities was foreseen. To avoid these delays, a program was developed to transmit collection referral notices over the SORD network. This allows immediate delivery to all business office locations in the state.

- Personal Identification Number (PIN) calling card service uses a randomly selected four digit number combined with the telephone number to form a unique calling card number. This calling card system mechanizes and simplifies much of the calling card traffic, thereby reducing costs. It also decreases the loss of revenue attributed to calling card misuse.

- Billed Number Screening (BNS) is a feature of mechanized calling card service which provides the capability of preventing collect and third number billing to predetermined telephone numbers. Effective use and management of BNS deters and minimizes the growth of uncollectibles resulting from fraud without affecting the growth of viable service offerings.

- Customers placing a long distance call from a public telephone and wishing to charge the call to a third number must first have the charges approved by someone at the third number. If an individual at the third number does not answer and approve the charges and an alternative billing cannot be arranged, the operator will not establish the connection. This procedure is designed to help eliminate fraudulent billing of long distance calls and protect customers from having unauthorized charges appear on their bills.

- Unrecovered Telephone Equipment Charge (UTEC) was developed to encourage customers to return disconnected telephone sets or, failing that, recover the costs of those sets from the customers responsible for their loss.

- Brochures explaining how to use custom calling features, which were provided to customers inquiring about or subscribing to these features, were replaced by a page in the Customer Guide section of our telephone directories. The brochure production and distribution costs, including postage, were saved. An additional benefit was a reduction in calls placed to our business offices.

- As the result of a nation-wide credit study, a credit screen was established. This allows fair and equitable treatment of applicants who are establishing new telephone service. This system allows the customer to establish a credit rating and possibly avoid paying a deposit.

- An account grouping system was developed that categorized customers by length of service and history of denial of service. Based on predetermined criteria, accounts are mechanically handled regarding past due notices, deposit refunds, additional deposit needs and reclassification of credit worthiness. This reduces manual handling and allows for equitable treatment of all customers.

- Payments made at agencies were identified as more costly and time consuming to process than payments remitted by mail. To reduce cost and processing time (which would increase cash flow) a payment agency trial was implemented that would restrict payments made at agencies to the full amount of the bill, paid by the due date and paid

with a return document. While this would only affect 10% of our customers paying at agencies, it considerably reduced the work this small percent of customers was generating. The average number of days required to process payments was reduced by 1.2 days. People required to process payments were reduced by 4.

- To cover the expense associated with dishonored checks, an administrative charge of $6.00 per check was initiated.

- Since it is less expensive to process mail payments over walk-in or payment agency payments, a customer education campaign was initiated. Not only does this reduce costs, it credits the customer more quickly for his payment. Mail payments increased by 6% between 1982 and 1983.

- Direct Delivery Service (DDS) to the customer's premises or to a participation agent via UPS is an option for delivery of equipment. Use of DDS reduced the need for visits by installation forces, as well as improved customer opportunities to realize savings in their installation costs.

- Previously, final accounts were manually collected through letters and phone calls. With the inception of mechanized final account treatment, notices are generated mechanically at scheduled intervals. Approximately 82% of all final billing is handled through the mechanized system and 62% of the accounts treated in this manner are collected. If the business office is unable to collect a final account, it is then referred to an outside collection agency. Previously their rate of compensation was 50% of the collected amount. We renegotiated all contracts and reduced the rate of compensation to 40%

- Training for business office operations was restructured from an instructor led to a self-paced mode. This reduced the need for instructors from one per every four students to one per every eight students.

- Authorization codes were established as a means of notifying the service centers of the type of equipment a customer desires. Previously orders taken over the phone were routed via a receiving only machine. With the use of this code, $750 per machine is saved. (29 machines were removed in Missouri.)

- In the past two years Missouri has trialed the operation of a customer services switchboard to handle metropolitan St. Louis customer inquiries about new telephone installations. Calls which would have otherwise been handled by service representatives were handled by PBX attendants. Customer's received full information about arranging service through PhoneCenter stores.

- Standard measured service is an optional one party service offered where facilities permit. It is an economical service for customers who make few outgoing local calls. The local calls are rated

according to four elements; time of day, distance of call, duration of the call and frequency of calls.

- A direct marketing/direct response center was formed. This center sends mail pieces to customers informing them of the availability of the various services (i.e., TOUCH-TONE®, Custom Calling) in their area. This keeps customers informed of services available and stimulates additional revenue.

- Originally customer orders received in the Direct Marketing Center were transmitted to the business offices via company mail. This required extended due date-intervals. Since January, 1983, order information has been transmitted via CRTS, utilizing PreBOSS printers. This has allowed for shortened due date intervals, providing revenue much sooner.

- Gift certificates were introduced as a sales item for the purpose of increasing long distance revenue. In 1982 over $1 million dollars in certificates were sold. Through the first six months of 1983 over $800,000 have been sold. For every $1 of gift certificates sold, an additional $.75 in incremental revenue is generated.

- PhoneCenters/Service Centers and Customer Participation Agents were established to afford customers the opportunity to participate in installations or changes of equipment. This reduces their charges for installation visits and saves them money.

- Reduction of the customer report rate has allowed the COIN I&M forces to be reduced by two exchange repairmen in the last twelve months.

- Enclosure Refurbishment Program: This program has reduced new capital requirements by reducing new purchases for telephone booths and enclosures. This program in future years will reduce new purchases by a minimum of 25%.

- Employee Ride Days: This program utilizes management employees to ride with occupational employees while they are performing their normal work duties. Upon completion of the review, the managers critique the day's events and identify roadblocks that hamper productivity or inhibit revenue, cost or quality. This program has reduced workman caused errors and increased sales by allowing management to pinpoint specific changes and initiating corrective action.

- Telephone Off-Premises Sales (TOPS) was introduced in July 1983. This group operates as a subsystem within the Public Service Center. The first priority of this group is to function as an essential partner to the premise sales group. This group has reduced expenses by eliminating unnecessary field visits, reducing overall clerical administration time and minimizing unprofitable coin stations by denying service requests. This system has increased productive sales time by over 100 hours per week, which is the equivalent of over two

sales persons with no increase on a per-station basis, because of market-specific targeting of high-revenue coin station prospects.

Department Business Sales

- Work station terminals have been selectively introduced to second level managers with heavy written correspondence requirements. As a result, productivity has improved and this program has reduced the number of drafts to produce a final copy, resulting in less clerical requirements.

- The establishment of mechanized mailing procedures for mass and selective mailings of critical information to the field sales force has resulted in more timely delivery of information and no increase in clerical help.

- All revenue, expense and force-related programs have been converted from outside vendors to internal systems.

- The ordering of sales aids has been centralized, allowing shipment of broken lot quantities to individual sales offices; thereby minimizing total number ordered.

- The Southwestern Personnel Locator and Undistributed Message System (SW/PLUM) has been installed in metropolitan sales offices to electronically process messages and telephone answering. This reduced the number of clerical personnel required in paper message processing.

- An electronic mail system connects all Sales Offices to decrease response time for mailing correspondence, reduce carrier costs, and transmit marketing information required for sales more quickly.

- Centralized word processing is used to reduce letter processing costs.

- From May to December, 1982 the Residence Direct Marketing channel generated $61,747 for Custom Calling Services and $58,040 for Touch-Tone®. During the first four months of 1983, we have already generated $102,831 in Custom Calling Revenue alone, and results of the Touch-Tone® program are not in yet. This increase in revenues, (an almost doubling of CCS revenues), was accomplished without increasing force.

- The Direct Marketing distribution channel (Residence) realized a savings of 26% in postage costs for Missouri programs by carrier-route sorting our mailing labels.

- The Direct Marketing Distribution Channel (Residence) handles responses to programs implemented in all five states of the company and must transmit order information to typing locations company-wide. Since January, 1983 order information has been

transmitted via CRTs, instead of mail, utilizing the Pre-BOSS network and default printers at various typing locations. This has allowed us to shorten the due date interval to three days from ten, providing revenue that much sooner.

- Missouri customers have been notified of the availability of Local Measured Service (LMS) by Direct Marketing programs. The mail piece provides the information necessary to elicit a buying decision. From July, 1982 through June, 1983, 4,563 residence customers changed to LMS by responding to our mail pieces. During this period, we have sold 28% of the total LMS lines in service.

- In order to increase revenues in the Residence Service Centers (RSCs) in Missouri, a sales incentive and motivation program was developed and implemented in July 1982. This program continues to have a positive impact on sales revenues. To provide further support for the RSCs, programs directed at increasing sales expertise and maximizing productivity have also been implemented. For the last twelve months, all programs have produced $3.9 million in incremental revenue and did not necessitate a force increase.

- In the area of revenue stimulation, energy conservation and time management, we have implemented the concept of teleconferencing. Teleconferencing has been used to introduce our sales force to its application. Various efforts are now being implemented through the use of teleconferencing. For example, teletraining is being developed for approriate courses for internal use. Teletraining should eliminate travel time and significantly reduce training expenses.

- Sales stimulation programs have increased the sales of most network services offerings. For the period from 1980 through year end 1982, Missouri sales of the following products registered these increases: OutWATS, 70.2%, 800 Service, 110%, Dataphone Digital Service - 56 kbps - 200%, Dataphone Digital Service - low speed - 466%. (All products above are intrastate offerings.) In addition, despite a capped inventory as a result of Computer Inquiry II, close to 98% of the base of existing Customer Premises equipment has been retained.

- The institution of several miscellaneous expense control programs and tight controls over personnel replacements have resulted in a total company marketing expense budget underrun of $18.1 Million through the first six months of 1983. This includes a $4.1 Million underrun associated with Missouri operations. Marketing expenses for the first six months of 1983 in Missouri are $7.8 Million as opposed to $18.5 Million for the same period in 1982. This is a 58% reduction in expense that is significantly greater than can be explained by the transfer of 45% of the Business Premise Sales force to American Bell, Inc. as of December 31, 1982.

Department Directory

- The Marketing Management group consists of six newly trained and assigned directory market managers who have recently been placed in each of the company's six directory sales divisions. Their responsibility will be to bring the market to the field; to conduct market surveys and related research for the division; to generate ideas for new products and work as liason between field and headquarters staff; to analyze local market competition and suggest ways to meet it; and to identify problem areas, suggest their solutions and explore new products.

- The new generation of telephone directories contain within their covers products and services ancillary to White and Yellow Pages listings and advertising. These include red print in the Yellow Pages, Gold Pages coupons, and specialty guides, maps and map locators. These new products and services combine to produce extra revenue for Directory.

- Yellow Pages Achievement Awards Program stimulates sales by recognizing, in the form of tangible rewards beyond salary and commission, its superior performers. These rewards include catalog gifts, prizes at discount, plaques, rings, pendants, and other tangible expressions of exceptional performance.

Department Comptrollers

- The need for card handling and reproduction was eliminated by discontinuing use of mark-sense cards and implementing a new form for recording gong information.

- Utilization of the recertification and replacement program provided by Magnetic Media, Inc. saved approximately $69,000 in rehabilitation costs.

- IBM CRT's were replaced with Memorex to reduce costs.

- Utilization of SORTAUDIT (a software monitor tool) to analyze and improve SYNCSORT performance, resulted in a savings of 27% in CPU time.

- Installation of the Weldstron shrink packing system reduced costs of material and one clerk.

- 12 STC 8350 disk drives were replaced with (6) 8650 disks resulting in greater capabilities and efficiency.

- We reduced the force by one tab operator by installing an IBM 3525 card punch.

- We dispensed with mechanical auto resets and adopted a software package from Telegenix for the SMS devices.

- By using an IBM 277 as a remote console for the system, we eliminated the need for Console RPQ to extend system cable to the console location in Kansas City.

- By combining the Functional Accounting Coordinator's job with the remaining MR/IBPS Coordinator's functions, we phased-out the MR/IBPS coordinators job.

- Rearrangement of workload for the Joint Practice 76 force resulted in reduction of two supervisory employees.

- We eliminated one management employee by combining the FAC Center Unit with the Maintenance Control Center (MCC).

- Consolidation of job responsibilities and expanded management functions in Operations/Technical Support T-Tran group resulted in the elimination of two management positions.

- We increased the span of responsibility and shuffled job activities to reduce a night shift supervisor and several clerical jobs in the Kansas City Clerical Services division and Data Center.

- Rescheduling user Administration Disbursement Supervisor's official work hours helped reduce overtime.

- Reorganization of job responsibilities, moving methods work from the Staff to the line organization, resulted in a reduction of clerical work and a more streamlined operation.

- Reduction of retention requirements for PICS application database image copies reduced tape requirements by 52 tapes.

- Conversion of MIRA print punch output from tape to mass storage eliminated the use of nine tapes per night.

- Print punch tape requirements were reduced by deleting the print punch step and creating fiche in PICS job IMS21315.

- One hundred (50) gallol drums at $3.50 each were used instead of 100 reinforced cable boxes at $23.50 each.

- Run time and tape requirements of TMS maintenance were reduced by increasing the block size of the data set.

- Processing techniques in Kansas City were altered which eliminated the need for the following peripheral equipment: 1403 Printer,

1416-1 Print Train, 2821-2 Controller, 2501 Card Reader, (2) 029 Card Punchers, 129 Data Recorder, and 084 Sorter.

- QSCANNER was used to look up production sysout for resolution of JCL errors, dumps, sysout verification and other problem solving, which resulted in a paper reduction, decreased console operator filing time, decreased operator verification time, and decreased management hours in problem resolution.

- We cancelled the installation of a 3033U in Kansas City and installed a 168AP from a San Antonio office rather than paying a one-time lease termination penalty in San Antonio.

- The number of 8350 disk packs required in Kansas City for the DIRECT application was reduced by rearranging the Telephone Master File (TMF).

- An arrangement was made with Ralston Purina Data Center to read old tapes for us, eliminating the necessity of purchasing a downgrade kit for our tape drives.

- Reusable nylon bags are used for mailing microfiche reports thus saving the cost of new boxes and envelopes.

- We hired an independent service bureau to zip code sort unsorted customer bills, thus reducing postage costs.

- SWBT personnel installed new turnkey Spectron equipment which saved $7,000 in installation charges.

- The retention period on print/punch tapes were reduced thus reducing the need to purchase more tapes.

- Procedures were implemented for accommodating state Routine Estimates from Missouri East/Missouri West estimates thus reducing processing and tracking efforts by 50%.

- We eliminated the use of ammonia absorber in the Computer Output Microfilm (COM) Center by converting to external venting.

- We decreased microfiche volume by changing Premise Address Listing from weekly to bi-weekly.

- Overtime was reduced by stepping up notification of additional coverage requirements on all real-time applications.

- We eliminated the need for management and nonmanagement overtime within the Data Center, Clerical Services and Print/Punch during BSDOPAC close by revising processing procedures to use duplicate data bases.

- One disk pack was made available for use on another application (which would have had to purchase one) by rearranging data sets in storage.

- Output from revenue journal programs was changed from paper reports to microfiche which produced substantial savings in paper and print time.

- We replaced some read/punch units with equally capable yet less expensive units.

- Replacement of Memorex disk equipment with STC disk equipment to reduced machine and maintenance costs.

- We worked intensely with the hardware vendor to dramatically improve tape processing reliability resulting in a substantial savings in avoidance costs for equipment.

- We reduced the retention period on SMF files from 45 to 10 days thereby freeing up numerous tapes.

- A three month study was performed on read/create tapes as a result, eliminated the 1600 BPI (read/create) from all but ten of the Data Centers one hundred tape drives.

- The rearrangement of current work operations for Independent Company billing and settlement resulted in the reduction of one management position.

- We implemented UNIX, a work processing system developed by Bell Laboratories. Conversion to this system enabled the Data Center operations to reduce one clerical position.

- Because of the installation of more efficient CPU complexes and chillers, kilowatt hours and utility billing have been reduced.

- Tymshare expense was decreased by $100,000 for processing 1982 furniture inventory versus 1981 inventory by increased procedural efficiencies.

- We assumed keying jobs for PICS, Business Marketing and Revenue and Public Affairs from outside vendors, saving expense of $100,000/year for these groups.

- Inter and intra departmental meetings are held monthly, or as needed, and are attended via Bell Teleconference calls rather than personal attendance to distant locations.

- Training and travel expense have both been reduced due to management's on-going efforts to curb expenses. Special controls have been implemented to insure that all levels of management are aware of any expenditures in this area and that all expenses are cost-justified.

- Consolidation of all payments for the 314 NPA in St. Louis and implementation of improved procedures for authorized agencies allowed a force reduction of five in the state Centralized Mail Remittance operations for an approximate loaded annual savings of $116,745.

- All furniture needs for 1983 have been met by utilizing furniture from company surplus.

- As result of a detailed study of tape drive usage in Springfield, 6 STC 3420 tape drives were disconnected and removed from maintenance contract.

- Implementation of a procedure which enabled the Voucher Office and CADE group to process three months of TYMSHARE billing as accruals and accrual reversals at end of year without keying the same data six times, saved 120 clerical hours.

- We installed a device to COM Center's processor drain pipe to recover silver from original microfiche for resale.

- Reorganizing the dishonored check investigation operations helped to reduce the clerical force by one full time employee.

- Reorganizing the voucher office operations resulted in the reduction of three clerical employees, two CADE operators and one first line supervisor.

- By improving mobile ticket procedures in Kansas City we reduced our force by one clerk.

- We reduced the Springfield force by three clerks and one supervisor through improved efficiency, work rearrangement and reduced volumes.

- We eliminated clerical intervention and re-entry of Private Line service orders by mechanizing statistics for the CRB system.

- Postage and paper expense were reduced by T-Tranning rather than mailing PICS/DCPR reports to other areas.

- We decreased reruns of PICS reports by mechanizing control card input.

- Substantial savings in postage expenses resulted from changing procedures from mailing to T-Tranning other states' print/punch tapes for TAS and MIRA (Mark IV Information Retrieval Aid).

- Conversation of several DIR/ECT (Directory Information Systems) sysout reports from paper to disk files produced a cost savings in paper.

- Substitutiton of Null Modem Cables and Modem Eliminators for telephone company data sets provided operations/support for all real time systems in St. Louis resulting in $223,000 savings.

- Implementation procedures to update all toll tables through TSO (Timing Sharing Option) accessed data-sets eliminated key entry work.

- A data base space utilization program was implemented which eliminated the need to reorganize two TIRKS data bases nightly, thus reducing tape usage.

- Missouri Comptrollers Consolidation - Beginning in May of 1982, Missouri Comptrollers began the process of consolidating its Missouri-East and Missouri-West operations into a single statewide organization. This has been the single most significant factor in recent cost/force reductions. While a detailed account of consolidation cost savings is not readily available, the force reductions made possible by consolidation are as follows:

Management	62
Nonmanagement	93
Total	155

Department Comptrollers - Security and Claims

- The damage claim group has consolidated the billing and collection of claims by the company for property claim. The collection rate for these special bills has gone from a 49% collection rate in 1979 to an 81% rate in 1982-1983. The claims group has recovered $845,027.00 in Missouri in 1982-1983.

- Careful tracking of damage claim history will be used to more precisely set risk retention levels, which should result in lower insurance premiums.

Department Comptrollers - Security

- Investigations are conducted to determine criminal conviction record existence on new employees and those transferring to new jobs. This procedure reduces the risk of assigning such persons to jobs requiring access to sensitive information and property, or contact with the public.

- Background investigations of potential contractors for company business are conducted. These investigations are instrumental in determining the potential supplier's ability to provide the work, service or product desired.

- Specific investigative teams have been assigned to develop the special expertise required to better serve the heterogeneous departments of our company. Geographic dispersion, size, task, physical assets and many other factors, determine exposure, risk, loss and needs for protection. These specialized teams are avilable for client consultation and training and for case review and handling, as necessary. Valuable time and money savings are expected as a result of this special expertise.

- Utilization of the Word Processing unit for routine correspondence matters has resulted in saving time. Office personnel have used that additional time to more effectively serve our increasing law enforcement liaison function and to improve customer/client satisfaction, without the necessity of adding more personnel.

- Transfer, retirement and/or termination of employees who possess a government security clearance requires certain actions be taken (e.g. termination of the clearance, etc.) to comply with federal regulations. A current computer application (SPAN - Southwestern Personnel Administrative Network) is being amended to automatically alert our office when these activities occur. Considerable time, money and paperwork savings are expected to result from this change.

- Items which come into our possession (e.g. unsolicited gifts to employees by potential suppliers, articles secured as the result of a settled claim, etc.) that cannot be disposed of in other ways, are sold at auction and the proceeds applied as Extraordinary Income Credit.

- Travel to remote locations is controlled. Subject impact on the company/public is considered and local management assistance enlisted to resolve issues, when possible. Preliminary toll fraud deterrent activity is conducted by mail or telephone. Personal visits are accomplished only when a sufficient number of cases to justify a trip are accumulated, or when the seriousness of the case dictates. Physical security inspections of remote facilities are conducted in conjunction with these trips. This procedure results in time and money savings.

- A program is currently being developed to computerize security data to the maximum extent possible. That capability is expected to substantially reduce the amount of paper data, save time and improve efficiency.

- Microfiche copies of customer billing statements provide immediate access to routinely subpoened information. This capability has eliminated contact time through simple and fast user access, enabling

us to more effectively satisfy our liaison responsibility with law enforcement.

Department Treasury

- The Deposit Reporting and Cash Concentration System (DRS) provides timely notification to Treasury and Comptrollers of Customer payments deposited in banks in all five states. (In Missouri 41 locations deposit into 36 banks.)

  Treasury uses the information to withdraw and use the funds quickly, and Comptrollers uses it to update customer accounts and reconcile billed revenues.

  In addition to reduced employee man hours spent in bank balance administration, an estimated annual savings of $625,000 ($73,000 in Missouri) has resulted from reduced bank balances and from eliminating all cash in transit.

Department Revenues and Public Affairs

- The development of sale prices to customers and vendors for inside wire and house cable has been both modeled and mechanized. These steps have shortened the response time required to generate a price quotation and thus improved the quality of service provided to complex business customers investigating alternative suppliers of customer premise equipment.

- The Outside Plant Broad Gauge Unit Cost Manual is generated annually using a series of computer program on the "in house" time share system. Mechanization of this costing manual saves clerical effort and improves accuracy.

- The calculation necessary to develop a fair value rate base has been mechanized on the "in house" time share system. This series of programs develops computed mortalities, theoretical reserves, and trended original costs of telephone plant in services by depreciable plant category. This mechanization saves considerable time by performing repetitive, complex mathematical calculations and printing the results in final format.

- The Extended Area Service/Originating Responsibility Plan (EAS/ORP) requires the determination of a company's cost to terminate calls when EAS service is installed. This cost represents the settlement between companies and is determined by a cost study

utilizing separations procedures. This EAS/ORP cost study for inter-company settlements has been mechanized on the "in house" time share computer to produce accurate results with a minimum of manual calculation. In addtion, mechanization of this process allows modification of input data to generate different settlement amounts representing various alternative service offerings while utilizing a minimum amount of manpower.

- Tariff production and revision work was automated by putting entire tariffs on an Information Processor. This allows traffic production work, which formerly took several weeks, to be completed in a matter of a few days.

- Files of Missouri quantities and rates was automated on "in house" time share computer. This allows the Company to do rate effect work, which formerly took six or seven people four or five weeks, in a matter of hours.

- The posting of new rates to accounting CRIS system was mechanized by using "in house" time share. This process eliminated hundreds of man hours of posting and key punch work.

- The process of estimating Independent Company toll cost settlements for budget and accrual purposes has been refined, including some mechanization and increased frequency of updates, to enhance the reliability and timeliness of these estimates' effects on budgets and revenues.

- Using form letters whenever appropriate saves valuable time in daily correspondence. Word Processing machines with permanent memory capabilities provide an efficient method of corresponding and has eliminated the need for typists in some work groups.

- A mechanized program has been developed that provides the annual Universal Listing used for Operator Services Agreement Studies. Each annual study is now prepared in one clerical hour, compared to approximately 80 clerical hours in the past.

- Independent Company Forecasting is a monthly report for tracking Independent Company messages, revenues and settlements. Manually, this report required approximately 8 hours of clerical time. The mechanized program now takes approximately 15 minutes clerical time. The mechanized reports include intensive data to be used in forecasting.

Department Public Relations

- Residence and Business customer bill inserts regarding rate case matters was consolidated in 1981. This has helped to save printing and distribution costs.
- Informational advertising expenses to alert customers to the 911 Emergency Service were reduced by providing public service announcements to broadcast media.
- Two Telephone Times company newspapers were consolidated into one statewide paper in 1981 which helped to save printing costs and personnel.
- The cost of producing Consumer Guide directory pages was centralized to make the guide more consistent and reduce production cost by approximately 25%.

Department Legal

- Word informational processing has been adopted in the Legal Department. This decreases the need for proofreading of briefs, contracts, etc. and helps in controlling secretarial overtime.
- The Missouri Legal Department played a major role in establishing the Company's first claims unit, which is part of our headquarters' operations. This centralized unit saves management time previously involved in accident investigation.
- A revised bill payment process was implemented throughout the state to centralize billing payments and improve cash controls.
- The collection process was revised producing more efficient methods of collection and less delays in the bankruptcy process.
- An expedited arbitration process for handling labor disputes was implemented which reduces pending cases, promotes fast resolution of disputes, avoids transcript charges, and decreases attorney handling time.
- In-house printing and duplication of appellate briefs was instituted after court approval, which is saving printing costs.

V. SERVICE QUALITY

- Below are trends of statewide results on those areas of service monitored by the Commission on a quarterly basis pursuant to 4 CSR 240-32.080. Annual results represent the simple average of the quarterly results. The 1983 results are the simple average of the first two quarters. Specific data concerning the second quarter 1983 results are contained in Schedule No. 2.

	1978	1979	1980	1981	1982	1983
I. Installation of Service						
A. Orders Completed Within Five Work Days (Objective 90.0%)	92.22	94.80	95.87	97.00	96.25	94.60
B. Percent Commitments Met (Objective 90.0%)	97.45	95.50	97.87	97.50	98.50	98.05
II. Regrade Orders Completed Within 30 Days (Objective 90.0%)	93.47	93.69	97.32	99.15	100.00	100.00
III. Held Orders						
A. New Installations	- -	- -	680	462	302	224
B. Regrade Orders	- -	- -	4643	3302	2147	1589
IV. Service						
A. Dial Tone Within Three Seconds (Objective 95.0)	99.65	99.72	99.90	99.85	99.90	99.50
B. Local Call Completion (Objective 95.0%)	99.92	99.55	99.17	99.80	99.85	99.90
C. DDD Calls Completed - Incoming (Objective 97.0%)	99.10	98.70	98.77	99.35	99.47	99.60

D. Interoffice Trunking - Overflow (Objective 4.0%)

0.32	2.07	1.65	0.62	0.13	0.04

V. Answering Time

A. Automated Operator Calls (Objective 2.8 seconds)

2.42	2.40	2.60	2.55	2.60	2.75

B. Repair Service - 20 Seconds (Objective 90.0%)

97.17	96.87	97.00	92.55	90.55	91.30

VI. Maintenance

A. Trouble Reports Per 100 Stations (Objective 8.5%)

4.55	5.00	4.15	3.72	3.65	3.45

B. Trouble Reports Cleared Within 24 Hours (Objective 85.0%)

- -	56.35*	76.90	87.25	87.60	87.60

* Average of third and fourth quarter.

C. Percent Trouble Commitments Met (Objective 90.0%)

90.75	89.10	93.67	95.30	94.12	94.10

We have reason to be proud of our service quality in Missouri. The above annual average data illustrates that service levels were below objective in two of twelve service categories on three occasions in the last five years. These problem areas were corrected and as a result, we've subsequently experienced no annual average failures in these areas since 1980. In addition, the performance trend for Held Orders illustrates our commitment to and provision of high quality service.

Each department is concerned with the quality of service that it provides. A variety of measurements are recorded on a regular basis to keep <u>all</u> employees aware of the importance of good quality.

Following are just a few examples of the service measurement results monitored by individual departments. Included are examples of on-going programs designed to improve quality of service.

Department Network Switching

- Telephone Service Attitude Measurement (TELSAM) provides a unique means for customers to state directly their impressions of service quality and specify directly their impressions of service quality and specify those factors that are most annoying.

The % satisfied objective is set at 97.5% for Local and 94.0% for DDD. Following are year end averages for this measurement.

DDD

	1981	1982	1983 (6 months)
Missouri	94.7	94.8	97.5
SWB	-	92.2	

LOCAL

	1981	1982	1983
Missouri	98.6	97.2	96.5
SWB	-	96.2	

- Trunk Transmission Maintenance Index (TTMI) measures (for the message network) the quality of performance in maintaining trunk loss and noise deviations within specified limits and a proper condition of balance in toll offices where balance is required.

Following are year end averages for TTMI.

	1981	1982	1983 (6 months)
Missouri	99.4	98.2	99.6
SWB	98.3	98.2	97.9

- Network Interoffice Transmission (NIT) measures network transmission performance between end offices, from the customer view. Measurement results are evaluated using mathematical models of customer reaction to loss and noise.

Following are year end averages.

% In Objective Band (Local)

	1981	1982	1983 (3 months)
Missouri	97.0	97.2	98.3
SWB	94.5	97.1	98.2

% In Objective Band (Toll)

	1981	1982	1983 (3 months)
Missouri	96.8	99.7	100.0
SWB	96.8	97.7	96.8

- The purposes of the T-Carrier Service Measurement Plan (TCSMP) are to (1)provide measurements to monitor T-Carrier service by highlighting those characteristics that directly affect customer service, (2)monitor individual T-Carrier system improvement programs, and (3) provide the methods and statistical analysis to determine network performance levels by central office, district, area and company. The objective band is 95.5% - 98.49%.

Following are the year end averages for this measurement.

1981	1982	1983 (6 months)
89.0	93.4	97.46

- Dial Line Service Evaluations (DLSE) provide performance statistics on network switching machine attempts to complete originating dialed calls.

Performance levels for each component are indexed and then banded into four categories.

Index % Levels

98 - 100	High
96 - 97.9	Objective
90 - 95.9	Low
Less than 90	Unsatisfactory

Following are year end averages for DLSE.

1980	1981	1982
99.2	99.8	99.8

- Incoming Trunk Service Evaluation (ITSE) provides performance statistics on network switching machine attempts to complete incoming toll calls.

The percent of calls not completed because of an equipment blockage and failure (EB&F) is considered to be a good indicator of network performance.

An objective of 1% EB&F has been established and a weakspot level has been set at 1.5% or greater.

Following are year end averages for ITSE.

1980	1981	1982	1983 (Fist 6 months)
1.2	.7	.5	.5

- Network Switching Performance Measurement Plan (NSPMP) measures customer service at local offices using maintenance, dial administration and design engineering related factors.

The measured components are indexed separately by control group and consolidated into a control group total index. Results for each component and total index are categorized by results bands. The state results show the percent by results bands.

Banding Table

Band H = 100 - 98.50	Higher than Objective
Band O = 98.49 - 95.50	Objective
Band L = 95.49 - 89.50	Less than Objective
Band U = less than 89.50	Unsatisfactory

The state objective is to have 95% of measured offices in the H & O Bands. A benchmark would occur when 80% or less are in bands H & O.

Following are year end averages for NSPMP.

1980	1981	1982	1983 (First 6 months)
94.6	98.15	97.75	98.27

- Central Office Code 5 & 8 measurement is based on customer trouble reports per 100/main stations. The final disposition of trouble is charged to a specific code type. Code 5 is trouble found in the Central Office. Code 8 is trouble found OK in the Central Office. Following are year end averages for this index.

	1981	1982	1983 (6 months)
Code 5	.13	.14	.11
Code 8	.02	.02	.02

Department Operator Services

- Telephone Service Attitude Measurement (TELSAM) measures the percentage of customers contacted who were satisfied with the service they received, and the percentage of customers who felt they were treated courteously.

  Directory Assistance has been within the objective range of satisfied customers for 51 of the last 54 months. The objective for courtesy was reached 33 months in the last 42 months.

  Toll and Assistance have maintained objective levels in customer satisfaction each month since January, 1981. The percent courtesy objective has been met seven months in 1980, eight months in 1981, nine months in 1982 and all six months in 1983.

- The combined Missouri Toll/Assistance and Directory Assistance operator speed of answer results have been within the objective range for 49 consecutive months. Missouri has not had a General Order No. 59 Service Quality Report miss.

- Missouri Operator Services has met the combined Toll/Assistance and Directory Assistance measured accuracy objective for the preceding 43 available months.

- As a further incentive to provide good service to our customers, we established an "Operator Commendation Bulletin" to recognize those operators who have been singled out by satisfied customers who have taken time to call or write to express appreciation for good service.

  Pictures of the operator along with the customer's commendation were published and distributed to all Missouri operators. The positive results of this program were evident through improvement in our TELSAM courtesy and satisfaction results.

Department Centralized Services

- 1982 Key Service Indicators (KSI) results reflect a significant improvement over 1981. In 1981, there were 120 opportunities for comparison on KSIs. Missouri was better than Company average 66% of the time and better than system average 53% of the time. This

compares with 1982 in which there were 186 KSI opportunities for comparison with Missouri results better than Company average 80% of the time and better than system average 72% of the time.

- Approximately 91,000 Missouri customers were polled by Telephone Service Attitude Measurement (TELSAM) in 1982, generally within a week after they had a business contact with our Company. All of our internal objectives on this measure of customer satisfaction were exceeded in 1982, as well as through the first six months of 1983. Missouri's composite average of the TELSAM results is better than the Company average for 1982 and 1983.

Department Business, Residence and Public Services

- Telephone Service Attitude Measurement/Residence Service Measurement Plan (TELSAM/RSMP) is designed to measure the quality of service provided by the Residence Service Center (RSC) as judged by the customer through TELSAM interview performed by outside market research firms. It provides the company with the customer's perception of the service they are receiving in dealing with the company and its' representatives.

  Since adopting this measurement the average annual "customer satisfaction" in our residence service centers has improved as follows:

	Missouri	Company	System
1980	91.8%	91.4%	92.7%
1981	94.1%	93.3%	93.5%
1982	94.9%	94.1%	94.3%
1983 (6 months)	94.5%	95.1%	95.1%

  We are achieving better customer service at the same time costs are being reduced.

- A group was formed to provide a centralized point responsible for the efficient, prompt handling of the complaints and inquiries from customers contacting the Public Service Commission and executives of our company. This group also operates a published toll free number that allows both business and residence customers easy access to a manager who can resolve their disputes and claims.

NUMBER OF APPEALS TO THE COMMISSION

YEAR	TOTAL
1979	2892
1980	2126
1981	1597
1982	1196
1983 (thur 6/30/83)	576

- Live balance average per month to total billing. This is the percent of unpaid billing at the end of each billing cycle.

1981	1982	1983
21.2%	20.4%	18.1%

- Net Bad Debt Average. This is the percent of uncollectible billing that will not be recovered because of unpaid final bills and adjustments made to satisfy customers.

1981	1982	1983
.24%	.39%	.30%

- The Missouri Centralized Operations Group (COG) was formed in August, 1981 to give outside vendors special handling separate from sales. A Lou Harris poll commissioned by AT&T and conducted in late 1982 showed that 82% of the vendors dealing with the Missouri COG were satisfied with the overall work performance.

- The Public Services Customer Trouble Report Rate in Missouri has improved from an average of over 10 reports per 100 stations in 1979 to a current 1983 average of 5.83 reports per 100 stations in 1983. Missouri coin has consistently led all five states in Southwestern Bell in coin service.

Department Directory

- Directory Customer Relations Bureau organized as a district in June 1981, was formed with a dual purpose: (1) to give the public a central location to make directory complaints and claims, and, when warranted, to receive adjustment and settlements; and (2) to increase directory revenues by reducing losses through intelligent adjustment and claims management. It also provides a point of coordination between business service centers and directory district sales offices.

Department Comptrollers

- Over the last 4 out of 5 years, Missouri Comptrollers has attained service measurement results that were above Southwestern Bell's Company average. The Comptrollers Department Results Report commonly referred to as the "Red and White" Chart reflects the following results:

Per Cent of Objectives Attained

	Missouri	Company
1978	74.8	76.7
1979*	87.4	85.6
1980*	85.9	84.0
1981*	98.0	94.0
1982*	97.4	95.2

* Above Company Average

The objectives measured include various real time system measurements as well as payroll, voucher and billing service quality.

Department Comptrollers - Security and Claims

- The Claims Office Risk Management Information System generates reports which measure claims activity. The reports, which are broken out by District, enable management to:

  a) Identify contractors who frequently damage our facilities
  b) Identify company work groups who frequently cause damage to the public
  c) Gauge the effectiveness of loss prevention programs, such as cable locate service

VI. Cost and Productivity Results

- Productivity in our Missouri operations has been well above the national average. While the productivity growth of the nation's economy has slowed since 1977, declining by a yearly average of -.3%, our productivity has grown at an average annual rate of 4.1%. Our intrastate productivity growth during the same time period has averaged 3.3% per year. It is evident that we have efficiently managed the use of our resources resulting in improved overall productivity. Thus, our rate request is not due to our inefficiencies.

  While our productivity growth has been exceeding that of the nation's economy, the inflation in our input costs (labor, plant and non-wage expenses) since 1977 of 8.2% is almost the same as that of the national average of 8.1%.

  Without the levels of productivity we have been able to achieve, the revenue requirements we are seeking in this case would have been higher.

Department Network Distribution Services

- Outside Plant Construction has steadily increased its productivity level over the last five years. Work units per manhour results are as follows:

	1979	9.69
	1980	10.78
	1981	11.30
	1982	12.78
(as of June)	1983	14.29

Department Network Switching

- Switched Services productivity is measured by the ratio of hours to work units. The hours represent nonmanagement work effort. The work units are System assigned units for each work function. The major functions involved in Switched Services' productivity are plant rearrangements, plant upkeep or repair and plant testing. Missouri results follow:

WORK UNITS PER HOURS

	1980	1981	1982	1983 (Cum to Date)
Rearrangements	12.44	14.82	17.39	18.55
Upkeep	16.58	18.79	21.48	22.67
Testing	26.40	31.33	36.21	39.53
Combined	17.43	20.39	24.04	25.71

The implementation of the factors mentioned in Sections I - Information and Operation System, II - Management of Human Resources, and III - Introduction of New Technology have had the greatest impact on our improvement.

- Missouri Switched Services' force has been reduced in each of the past three (3) years:

FORCE

	1980	1981	1982	1983
Management	755	786	737	722
Non-Management	1925	1873	1847	1775
Totals	2680	2659	2584	2497
Access Lines (000)	1730.5	1750.3	1756.6	1780.7
Force (Access Line)	.00155	.00152	.00147	.00140

Missouri is below the Company average on force per access line.

- The major portion of Switched Services' forces is directed to the maintenance of our plant. These hours have been reduced each of the past three years.

	1980	1981	1982	1983 (Projected)
Total Maintenance Hours (000)	2226	2177	2120	2067
Hours/Access Line	1.29	1.24	1.21	1.16

Missouri Switched Services' maintenance hours per access line is below Company average. It should be noted that our maintenance hours required for our ESS technology are far below our requirements in the older electromechanical technology.

1982

	Access Lines	Hours Req'd	Hours/ Access Line
ESS	1,353,265	554,273	.41
Electro-mechanical	407,406	327,761	.80

While we continue to make efficiency improvements in electromechanical maintenance requirements the real payoff has been in the upgrading of our plant to the electronic switching and solid state technologies.

- Technology, operation systems and management of human resources has had a dramatic impact on containing our maintenance cost. The following cost comparison of annual cost to maintain an ESS access line versus an electromechanical access line illustrates that impact:

1983

	Total Cost	Labor Cost	Engr. Cost	WECO Cost	All Other
ESS	$15.83	$9.68	$ .36	$5.11	$ .68
Electromechanical	$29.70	$18.40	$1.35	$9.10	$ .85

Department Operator Services

- Actual Work Time (AWT) is the number of seconds it takes an operator team to handle an average call. As a result of mechanization and increased emphasis on productivity, the AWT for handling all operator assisted calls in Missouri Operator Services has decreased approximately 9% since 1979.

- Operating Efficiency is used to measure and control the expense of providing operator board hours and compares it with that of a Standard Bell System team handling the same mix of calls offered to an operating team. Operating Efficiency reflects both operator team productivity and the quality of force planning, scheduling and administration. The normal range for Operator Efficiency in the Bell System is in the vicinity of 80-120. The standard Bell System Operating Efficiency is 100. Missouri's Operating Efficiency ranked above the Bell System standard in 1981, 1982 and continues to rise in 1983.

Department Centralized Services

- Missouri "Employees Per 10,000 Access Lines" statistics show significant reductions from December 1979, through May 1983, as displayed below:

Employees Per 10,000 Access Lines
December 1979 - May 1983

	Bell System Average	SWBT Average	Mo Average
Dec. 1979	100.50	104.20	92.76
Dec. 1980	98.70	104.03	89.64
Dec. 1981	96.34	101.42	86.42
Dec. 1982	90.80	98.42	84.73
May 1983	86.78	93.43	79.55

In addition, Missouri's average "Employees Per 10,000 Access Lines" has been and continues to be far less than the SWBT Company and Bell System averages.

- Missouri's average monthly operating expense per access line is significantly lower than the Company and Bell System average:

	Missouri	Company	Bell System
1983 (5 months)	38.99	42.20	43.66

Department Business, Residence and Public Services

- Missouri has the lowest commercial expense per average access line in the Company in 1983, and ranked lowest for twelve months in 1982. In six months during 1983, Missouri has reduced its commercial expense per line by five percent.

- Missouri has the lowest residence RSC expense per account in the Company for six months, 1983. Missouri's expense underruns the Company level by 20 percent.

- Missouri's RSC force has been reduced within the past two years due to greater efficiencies from office consolidation and PreBOSS mechanization. In the past two years we closed 39 out of 53 RSC locations and we converted all of our units to the PreBOSS customer record system. The total savings to Missouri in 1982 was $1,024,771 in wages and salaries.

- RSC cost efficiency can also be measured by span-of-control ranges of management to non-management employees. Missouri improved

this ratio by 21 percent in the period from January, 1982 to June, 1983.

- Missouri Coin Expense per station in 1981 was $285.51. In 1982 this same expense per station was $285.06. While holding the line on costs in a high inflationary period, we were able to increase revenues by 9.8%.

- Public telephone sales per Public Telephone Representative (PTR) have increased from an average of 9 per month in 1981 to 37 per month in 1982. Sales per PTR during 1983 are averaging 55 per month. The increase in productivity is a result of improved management efficiency and improved marketing revenue reports. Sales training was provided in 1981 and 1982 for all sales persons and managers. Increased sales reviews both office and premise have also contributed to the increased productivity.

- Due to mechanization enhancements in Public Services many manual tasks have been eliminated thereby reducing employee force. Since 1980 the state of Missouri has reduced their force by three coin collectors and two key clerks. In addition, over the last four years productivity has increased approximately 18 percent thus, our number of collections made by collectors have increased signficantly with no force increase.

Department Business Sales

- In the past several years Missouri Public Services has increased significantly, both main stations and billed revenues, while minimizing overall segment expense. The number of sales persons in Missouri has remained constant at 10 the past three years. Increased productivity by the sales group has been the key to station growth. See below:

Billed Revenue

1981	1982	$ Inc.	% Inc.
$49.9M	$54.9M	$4.9M	9.8%

Segment Expense

1981	1982	$ Inc.	% Inc.
$8.39M	$8.73M	$ .34M	4.1%

Main Stations

1980	1981	Net Gain	% Inc.	1982	Net Gain	% Inc.
28159	29447	1288	4.6%	31428	1981	6.7%

- Business Premise Sales contact forces in Missouri have been utilized more effectively every year. Their productivity and the benefits of enhanced training, marketing information systems, and market and product strategies can best be summarized by total business billed revenues per premise sales contact employee which have increased as follows:

	1981	1982	1983 (partially estimated)
Annual Revenue Per Sales Person	$1,072,300	$1,252,800	$1,652,800
Percent Increase Over Previous Year	N/A	16.8%	31.9%

Department Directory

- The chief indicator of operating efficiency and productivity is to relate Account 649 expense (Directory Expenses) to Account 523 revenue (Directory Advertising and Sales). This ratio illustrates the effect programs, systems and procedures identified in the other categories has impacted the cost and productivity results.

YEAR	RATIO 649/523	
1983	.40	(Projected)
1982	.40	
1981	.43	
1980	.43	
1979	.45	
1978	.48	

In 1978, it cost 48 cents to generate a dollar's worth of sales. In 1982, the same sales dollar cost only 40 cents or a 16.7% improvement over the five year period.

Department Comptrollers

- Generally, mechanized projects equate to overall cost savings for the Company. For Comptrollers, however, they often mean an increase in responsibility or expense due to our role in processing all mechanized systems. Despite the increasing demand and implementation of such systems, Comptrollers has decreased costs during the past year. The chief measurement of this is total force: Comparing headcount as of June 30, 1983 to December 31, 1982,

Comptrollers has a net reduction of 19 management and 26 nonmanagement.

- Management overtime in Comptrollers has decreased 60% comparing the first half of 1983 with the same time period of 1982.

- The primary Comptrollers measurement is Cost Per Subscriber Line (CPSL) which measures Accounting (Main Account 662) expense against the number of subscriber lines in each state. For the past year, the Missouri Comptroller Operations results have been:

6/82 Year-To-Date	12/82 Year-To-Date	6/83 Year-To-Date
1.05	1.04	.89

As one can see, Missouri has decreased Accounting expense per subscriber line 16 cents this year over the same period last year. This equates to approximately $1,650,000. If one includes all Missouri 662 charges, regardless of Department, and including GHQ prorates, the current June YTD CPSL is 1.49. This is well below the 4th quarter Bell System average of $1.55.

- Missouri Comptrollers has continued its efforts at increasing span of control, thus reducing costs. Supporting statistics are as follows:

	(As of 1/82) 1982	(As of 6/83) 1983	Differences
Fifth Level	4.5	5.0	+ .5
Fourth Level	3.5	4.7	+1.2
Third Level	5.6	6.0	+ .4
Second Level	4.0	4.6	+ .6
First Level	5.2	5.2	-

The three primary contributing areas to these recent increased efficiencies are Missouri Comptrollers Consolidation, new mechanized projects, and other procedural improvements.