5-1997

Impact of the Adoption of New Technology (FACNET) on a Minority-Owned Small Business in Colorado

Tamara L. James

Langston University

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The Edwin P. McCabe Honors Program

Senior Thesis

"Impact of the Adoption of New Technology (FACNET) on a Minority-Owned Small Business in Colorado"

Tamara L. James

May 1997

Langston University
Langston, University
Impact of the Adoption of New Technology (FACNET) on a Minority-Owned Small Business in Colorado

By
Tamara L. James
Accounting Major
Department of Accounting
School of Business
Langston University
Langston, OK

Submitted in partial fulfillment of the
E.P. McCabe Honors Program
May 1997
Impact of the Adoption of New Technology (FACNET) on a Minority Owned Small Business in Colorado

Thesis Approved:

Thesis Committee Chairman

Stacy Dawson 5-9-97

Thesis Committee Member

Thesis Committee Member

Thesis Committee Member

Director of the Honors Program

Vice President for Academic Affairs
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Chapter I
Introduction

History of FACNET

Federal Acquisition Computer Network (FACNET) is a computer network designed to inform the public about federal contracting opportunities, outline the details of government solicitations, enhance the quality of data available about the acquisition process, and provide accessibility of services through a personal computer and modem. The Federal Acquisition Computer Network was developed to save time and money, make business more efficient and enhance competition among businesses that have (or will) do business electronically. FACNET is a computer program that moves Electronic Data Interchange (EDI) transactions from Department of Defense (DoD) and federal buying sites to and from the certified Value Added Network (VAN), which is a network service provider offering services beyond the basic connectivity from point A to point B. VAN’s provide EDI services, internet access, fax services, e-mail forwarding, video teleconferencing connections, bid matching services and a variety of other forms of electronic communication based services. A customer who has a contract with a VAN is required to do EDI because it is mandatory for DoD. The VAN’s then pass their files/agreements on to their customers. From this point bids and awards are given. This study is based on how a minority small business in Colorado which will be known as XYZ Communications, Inc. is benefiting from FACNET.
Background of XYZ Communications, Inc.

XYZ Communications was founded in 1976 as an electrical supply provider. The company has since dedicated itself to emerging technological opportunities. XYZ Communications has developed into a premiere provider of telecommunication products and services. XYZ Communications provides inside and outside plant services, telecommunications products, and multimedia processing technology. The multimedia technology market involves every company, large or small, requiring voice, data or video interaction with its clients or its personnel. Conservative estimates project the 1996 multimedia market to be $50 billion in the United States and growing by double digits annually.

Along with its inside/outside plant services and telecommunications products, XYZ Communications is establishing a niche in the multimedia technology market. Through Electronic Data Interchange (EDI), debit calling cards, and distribution through smart devices (kiosks), XYZ believes that its ability to integrate technologies, provide solutions and to build relationships will place it in a unique position to offer superior products and services.

XYZ has extensive expertise on large government and corporate projects in support telecommunication, video and date systems. XYZ understands government and corporate requirements because of experience with past and current programs. The company has experience in requirements definition, systems design development, installation, maintenance, and support of mission critical systems and understands the importance of getting started successfully and using the best in-house people to initiate new efforts.

XYZ provides some of the most advanced telecommunications products and services in the industry today. The company’s capabilities range from
value-added resale of products and equipment to the installation, integration, and maintenance of telecommunications, video and data systems.

**Range of Services**

XYZ provides a variety of advanced technology information systems and services such as:

- **VIDEO TELECONFERENCING**
  - Installation, servicing and maintenance of video teleconferencing equipment and networks
- **SYSTEMS INTEGRATION**
  - Telecommunications systems and computer systems with an advanced technology focus
- **TELEPHONE COMMUNICATIONS**
  - Installation, operation and maintenance of telephone communication systems
- **COMMUNICATIONS CABLING**
  - Design and installation of communication cabling systems, including fiber optic/copper wire placement, connectivity testing and documentation
- **COIN TELPHONES**
  - Installation, service and maintenance of coin operated telephones
- **VALUE ADDED NETWORKS AND VALUE ADDED SERVICES**
  - Development of EDI Implementation, Program Training, Feasibility Determination, Program Development, and Program Management

**Range of Product**

Telecommunication (Voice, video and data) Product Distribution

Procurement, staging, warehousing, and delivery for end user client or contractor are provided by XYZ.
XYZ is an authorized distributor of the following manufacturers:

◊ **PictureTel**-XYZ is a value added seller of PictureTel video teleconferencing equipment for the Federal Government market segment.

◊ **Elcotel**- XYZ is an authorized installation and maintenance company for Elcotel coin operated telephones and management systems.

◊ **Amphenol** - XYZ has implemented an agreement with Amphenol Fiber Optics Division to provide relay tracks, cable runway systems and cable support systems. These racks are used in both the cable television and telecommunication industries. There are plans to integrate the racks into their outside plant construction effort.

**Construction**

Currently, telephone, cable and computer communication services are and will be delivered to homes and businesses via dedicated wiring systems. Future plans to develop wireless technologies are underway, however, each delivery vehicle (wire or wireless) will require additional and significant network expansion and enhancements. In light of the recent telecom bill
signing and the mega mergers of telecommunications, cable and other
electronic media firms, it is projected that all firms will propagate their
networks through additional upgrades and enhancements.

In many cases, the primary infrastructure and the distribution to the end
users will need to be enhanced or rebuilt. XYZ’s plan is to position itself to
provide Outside Plant (OSP) facility construction. The market for OSP
construction services includes the original Bell Operating Companies
(RBOC’s), long distance carriers, cable companies, utility companies and other
carriers developing their OSP capacity. Each of these entities is wanting to gain
market shares, propagate technology and further develop revenue. As a result,
those organizations have rigorous and aggressive outside plant construction
plans in place. Construction programs are positioned to facilitate new growth
and re-building of multimedia infrastructure.

XYZ has responded to a void of telecommunications companies and the
aggressive build out program by the plant owners through the development of
full-service construction division. The XYZ construction division is a cadre of
professionals committed to construction quality, productivity, innovation and
service. XYZ construction is a focused organization with the capacity and
capability to manage a broad range of outside plant construction activities. The
company has managed numerous large scale projects from wireless to copper, coax and fiber systems.

XYZ has developed strong relationships with major telecommunication providers and media providers such as US WEST Communications, TCI and Denver International Airport. The company’s plan is to expand its capability through alliances with other performance construction companies such as Pauley Construction of Arizona and OSP of Sterling, Virginia (Murray).

XYZ Communications is organized to reflect support to its clients. The organizational approach is designed to maximize communications and responsiveness to the client. XYZ Communications employs thirty-six full time employees at the office. XYZ Communications is currently using FACNET in three different departments are video teleconferencing (department A), telephone communications (department B), and coin telephones (department C). Objectives of FACNET are to reduce time and resources needed to conduct a paper-based system. Therefore, this study is conducted to answer the following questions about the use FACNET by XYZ Communications:

◊ Has FACNET helped reduce the cost of paper used in the business?

◊ Has FACNET helped reduce the cost of long distance calls (telephone and fax) in the business?
◊ Has FACNET helped reduce the cost of traveling expenses (hotel and transportation) in the business?

◊ Has FACNET helped the business to conduct in a more efficient manner?

These questions will help determine if XYZ Communications is benefiting from FACNET in each department. Each department will be compared to determine which department is benefiting most from FACNET.
Chapter II

Review of Literature

FACNET is a computer network that is trying to help businesses more efficient in conducting business. Fairfax Electronic Commerce Resource Center (ECRC) explains that the government hopes that all or a majority of small businesses will be using FACNET by December 31, 1999. The idea for an electronic procurement system began in the private sector in the early 1980’s. The National Performance Review (NPR), in a report filed in 1993, highlighted and encouraged the use of an electronic procurement system in the federal sector. The NPR determined that the inefficiencies of the current paper-based procurement system was costing taxpayers billions of dollars each year. The NPR’s findings led to the inclusion of electronic commerce in the Federal Acquisition Streamlining Act of 1994 (FASA). On January 25, 1994, the Congress passed Senate Bill 1587, the Federal Acquisition Streamlining Act of 1994 (FASA), which President Clinton signed into law. FASA replaced the existing “small purchase threshold” of $25,000 with the “simplified acquisition threshold” of $100,000. It also created the category of the “micro-purchase” with some powerful implications for purchases below $2,500 and mandated that
the Federal Government create a network for spreading electronic commerce (EC) throughout the federal government.

The federal government has mandated that all purchases between $25,000 and $100,000 go through its Federal Acquisition Computer Network. The increase is in two stages: $50,000 initially and then $100,000 as agencies make progress toward the electronic procurement system. This paperless system allows agencies to exchange information over the telephone lines in standard electronic formats known as “transaction sets.” The government hopes to reduce the time and resources needed to conduct the current paper-based system by implementing the electronic procurement system.

The federal government spends billions of dollars on goods and services each year. The officials of the US Army report that 89% of those billions of dollars go to purchases over $25,000. Over 98% of the individual purchase are for less than $25,000, and most of those are under $2,500, the so-called “micro-purchase” category (ECRC 12).

The micro-purchase is distinct from the small/simplified purchase category in several respects. Micro-purchases allow government purchasers to act quickly and easily. FASA set the micro-purchase threshold at $2,500. FASA exempts micro-purchases from the small purchase set-aside requirement.
It also exempts them from the “Buy American” Act, as well as open competition. The bottom line is that purchasers can go to any source for anything under $2,500 (ECRC 9), including large retailers, “superstore”, even overseas sources. Competition will still exist, but small businesses will have to compete on price and service for government buyers’ attention, just as they do for corporate and individual sales. FASA does, however, require that “purchases not greater than $2500 shall be equitably distributed among qualified suppliers” (ECRC 10).

FASA will allow buyers to use simplified purchasing processes up to $100,000 instead of $25000. The catch is that the buyer must transmit 75% of his “eligible” transactions through EDI, the threshold falls back to $50,000. (FASA does not clearly define what “eligible ‘ means. It is the task of the Comptroller General to report to the Administrator for Federal Procurement Policy and Congress on what types of contracts are not suitable, and therefore not eligible, for EDI.) The government is strongly pushing the use of EDI for procurement reform. It sees the requirement to use EDI as the best method to force implementation within the government.

Small businesses received $24.8 billion in prime contracts from the DoD in 1993. They received an additional $17.4 billion from the DoD as
subcontractors that year. This $42.2 billion to small business represents over 37% of all DoD contract moneys in 1993 - a sizable figure by any measure (ECRC 11).

DoD efforts to simplify and standardize contracting opportunities are well underway. Over 100 sites are currently issuing requests for quotation on FACNET; another 100 are due to participate within the year. Although still in its fancy, FACNET is positioning itself to become the sole gateway to DoD acquisitions.

Two key factors influence the emerging importance of FACNET. First, FASA sets the simplified acquisition threshold (SAT) at $100,000, which the business community will recognize as a real and significant increase in selling opportunities. Second, the addition of new buying sites, new transaction sets, and new vendors to the DoD EC/EDI program will drive up FACNET's transaction volume (ECRC 12).

The United States Department of Defense (DoD) monitors the activities of FACNET. FACNET's architecture features two network entry points (NEP's) through which all message traffic must flow. FACNET uses the NEP's to reduce redundancy in case of failure. The NEP is the focus of federal EDI activity, routing incoming and outgoing documents between vendors' VAN's.
and government agency gateways. The NEP’s are located in Columbus, Ohio, and Ogden, Utah. Small businesses have to have an account with a certified Value Added Network (VAN) in order to send and receive Electronic Data Interchange (EDI) transactions. Leonard Murray, identify that many businesses adopt EDI to gain or keep an important customer or supplier. ECRC states that businesses invest in FACNET because a trading partner required them to use FACNET.

FACNET has many advantages one of which is to create new business opportunities from the pool of government RFQ’s (Request for Quote), suitably filtered to present only those requests that are of interest. Federal agencies are spending $200 billion a year products sold through EDI. Vendors can eliminate reproduction, mailing, handling, repetitive data entry. FACNET can revolutionize the way business is conducted through the use of E-mail and EDI. Invoices can be sent electronically and the payment process accelerated. Such processes level the playing field, allowing continuous access any time of the day around the world twenty four hours a day, seven days a week, regardless of size and geographical location.

FACNET has the ability to send and receive invoice information by suppliers electronically and verify receipt of goods, services and deliverables.
Customers of FACNET report that they are receiving more bids with increased price competition, as well as having the benefit of less paperwork in both inputting data and mailing out of RFQ's. Additionally, the system opens up small procurements to bidders who are new to the contracting officers, who occasionally do not perform adequately after award.

Some participants, however, have said that they did not have full confidence in the system yet, and have reported instances of bids not making it to the “bid board” or cases in which award notification went to the wrong party. These glitches were cataloged for corrective action. Plans to set up new gateway point for the DoD are being made to eliminate many of these technical problems.

ECRC, Dr. Greensburg, and Leonard Murray state that EDI is smart for small businesses and DoD. There are real sales opportunities today with DoD through Electronic Data Interchange. Because DoD buying activities can raise the thresholds by implementing EDI. ECRC states that small purchases and micro-purchases account for over 98% of all government purchases (ECRC 13). ECRC believes that the government uses FACNET to:

- inform the public of contracting opportunities.
- publish details for government solicitations.
- accept electronic submission of bids and proposals.
• gather responses to questions about solicitations.
• enhance the quality of information available about the acquisition process.

Leonard Murray, ECRC, and Dr. Greenberg agree that FACNET is the beginning of a new era in conducting business. FACNET is improving each year. By the year 1999 all small businesses will be able to compete in the electronic procurement system.

Established small businesses are able to use FACNET; however, small businesses that do not have the resources can not use FACNET. If the small businesses do not have a computer with a modem they are unable to receive the information that FACNET has to offer. If small businesses were to invest in a computer system and a modem, would FACNET actually reduce the companies resources, time, and money?
• By 1993, EDI was the second most common means of exchanging business documents in the U.S.. Paper remained number one, but had fallen by nearly 50% since 1988.

• As we saw in the introduction, despite the many benefits of EDI, most companies implement EDI because a trading partner requires it.
Conversely, the most common reason for not implementing EDI is that a trading partner refuses to participate. Industry growth has reduced early concerns over costs and compatibility.
Chapter III
Methodology

Method of Research

Has FACNET helped reduce the cost of paper used in the business?
Has FACNET helped reduce the cost of long distance calls (telephone and fax) in the business? Has FACNET helped reduce the cost of traveling expenses (hotel and transportation) in the business? Has FACNET helped the business to conduct in a more efficient manner? These research questions will be answered by retrieving information about FACNET from newspaper articles, federal publications, Internet pages, and a questionnaire given to different departments in the minority small business. Questions asked were, why did the department invest in FACNET? How much has FACNET helped reduce time, travel expenses long distance calls, and paper that are used in the conduct of business? How has the electronic procurement system has enhanced efficiency in the conduct of business? Each department was asked how much it cost to implement FACNET into the department, how many computers where purchased to implement FACNET, and how many employees where trained to use FACNET. The questions of whether or not money was saved and, if so, how much.
The questionnaire showed how the minority small business, XYZ Communications, Inc., has benefited from FACNET. The statistics of the measurements from the questionnaire assisted in determining whether or not FACNET has helped the departments in conducting business. Identifying ways in which departments have benefited from FACNET was another objective. Also, how much money has been saved since XYZ Communications has used FACNET was ascertained. This study on FACNET helps evaluate whether or not established small businesses should use FACNET.

The questionnaire was used in interviewing each department about its use of FACNET. The interview was given to the Vice President and department managers of the XYZ Communications. The information was then analyzed and presented in Chapter IV of this study.
Chapter IV

Presentation of Findings

The results from the questionnaire reveal that XYZ Communications had an increase in each department after using FACNET. All three departments increased efficiency in their conduct of business. The paper used to order the products which was used to request the information on FACNET was reduced by 19% in department A, 28% in department B, and 53% in department C. A total of $9,000.00 reduced the use of paper in all three departments. Travel expenses were decreased tremendously because a number of business trips were canceled. There was not a need to schedule business trips if the department could use FACNET to negotiate the prices and details of the business transaction. Department A and B decreased their travel expenses by 33% ($403/$410). Department C decreased their travel expenses by 34% ($420).

The time spent in a day to negotiate the business transactions was decreased by at least three hours for all three departments. The hours were decreased because there was less paper work to be completed in a day, less telephone and facsimile calls to make, and less travel arrangements to be made. Many long distance phone calls were eliminated by using FACNET. Instead of
calling on the phone, one would send information via FACNET. A total of $9,288.00 was saved in long distance calls.

An individual came to XYZ Communications to train the employees on how to use FACNET. The cost of training the employees was considered in the startup cost. The cost to train the employees in department A was $1,050.00, department B $1,500.00, and department C $2,850.00. Before the company could invest in FACNET, twenty computers were purchased. After the computers were purchased, XYZ Communications could invest in FACNET. The cost to implement FACNET into XYZ Communications was $15,600.00. The cost of implementing FACNET was a little steep for XYZ Communications minority small business. However, the cost to implement FACNET compared to how much it has saved the company is minute. FACNET has saved the company at less 65% in time, money, and resources used to conduct a small business.

The results of the questionnaire show that all three departments have increased their efficiency in the conduct business, the use of paper, and time. FACNET did help XYZ Communications communicate with the government. It also helped the small business to compete with one another. (See Appendix.)
Chapter V

Summary and Conclusions

FACNET is a computer network that moves Electronic Data Interchange (EDI) form Department of Defense (DoD) and federal buying sites to and from the certified Value Added Network (VAN). It helps small business to compete with one another. It also helps to create new business opportunities from the poll of government RFQ’s. It makes a business more efficient. FACNET can be accessible through a personal computer and modem. The government uses FACNET to inform the public of opportunities, publish details for government solicitations, accept electronic submissions of bids and proposals, gather responses to questions about solicitations, and to enhance the quality of information available about the acquisition process.

The departments of XYZ Communications invested in FACNET because of the time and money it saves. Once XYZ Communications implemented FACNET into the departments, efficiency in the conduct of business was quickly improved.

Each department's travel expenses, long distance calls, time, and use of paper was dramatically decreased. FACNET is a computer network which helps small businesses such as XYZ Communications to eliminate
reproduction, mailing handling, and repetitive data entry. By eliminating these factors and others, small businesses are benefiting from the advantages that FACNET has to offer. Based on this case study of a small minority-owned business and Colorado, FACNET is truly an asset for a small business to possess.

FACNET is a great asset for small businesses that do interact with the government. A question that should be researched is how long did it take for a company to benefit from FACNET. When did FACNET start reducing the use of paper, time, travel expenses, and long distance calls. These questions will help determine if a small business has the time and money to invest in FACNET.
APPENDIX
Questionnaire

How much has FACNET reduced the use of paper in your department? (monthly)

____ $0 - 200  ____ $400 - 600  ____ $800 - $1,000

____ $200 - $400  ____ $600 - $800  ____ $1,000 and up

How much have your travel expenses (hotel and transportation) decreased in your department (monthly)?

____ $0 - 200  ____ $400 - 600  ____ $800 - $1,000

____ $200 - $400  ____ $600 - $800  ____ $1,000 and up

How much has FACNET reduced the cost of long distance calls (telephone and fax) in your departments (monthly)?

____ $0 - $200  ____ $400 - $600  ____ $800 - $1,000

____ $200 - $400  ____ $600 - $800  ____ $1,000 and up

How much time did FACNET reduce in the conduct of business? (hours per day)

____ 0  ____ 1  ____ 2  ____ 3  ____ 4

____ 5  ____ 6  ____ 7  ____ 8  ____ 9

How much did it cost to implement FACNET in your department?

____ $0 - $500  ____ $500 - $1,000  ____ $1,000 - $1,500

____ $1,500 - $2,000  ____ $2,000 - $4,000  ____ $4,000 - $6,000

____ $6,000 - $8,000  ____ $8,000 - $10,000  ____ $10,000 - $12,000

____ $12,000 - $14,000  ____ $14,000 - $16,000  ____ $16,000 and up
How many computers did the company buy to implement FACNET into the department? -

________________________________________

How much did it cost to train your employees?

_____ $0 - $1,000  _____ $1,000 - $1,500  _____ $1,500 - $2,000

_____ $2,000 - $2,500  _____ $2,500 - $3,000  _____ $3,000 and up

How many employees were trained to use FACNET? _______________________

What do you think are the benefits of using FACNET in your department? __________________________________________

________________________________________

Why did your department invest into FACNET?

_____ To improve the conduct of business?

_____ Because a supplier/customer demanded?

_____ To reduce the costs and expenses of the department?

_____ Other ________________________________
# QUESTIONNAIRE RESULTS

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*Graphics showing bar chart for each department*
Reduction of paper

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Travel Expenses

A 33%
B 33%
C 34%
Travel Expenses

$390.00
$395.00
$400.00
$405.00
$410.00
$415.00
$420.00

A  B  C

redemption of travel expenses
Reduction of long distance calls

$5,000.00
$4,500.00
$4,000.00
$3,500.00
$3,000.00
$2,500.00
$2,000.00
$1,500.00
$1,000.00
$500.00

$4,902.00
$2,580.00
$1,806.00

Reduction of long distance calls
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VITA
Tamara L. James
Candidate for the Degree of
Bachelor of Business Administration
And in the Completion of the
E. P. McCabe Honors Program

Thesis: Impact of the Adoption of New Technology (FACNET) on a Minority Owned Small Business in Colorado

Major: Accounting

Biographical Information:
   Personal Data: Born in Omaha, Nebraska, October 16, 1975, to Thomas and Carolyn James.

Education: Graduated from Omaha North High School, Omaha, Nebraska, in May 1993; will complete requirements for Bachelor of Business Administration at Langston University in May 1997. Also the requirements for the E. P. McCabe Honors Program will have been completed.

Honors and Activities: E. P. McCabe Honors Program; Regent Scholarship; Phi Beta Lambda Vice President; National Association of Black Accountants Community Service Co-Chairman; Scholars Club President; Senior Class Centennial Secretary; Student Government Secretary.