Information Technology Cluster Progress Report

of
The Santa Fe Plan
“The Cluster Approach to Economic Gardening”

Prepared by Santa Fe Economic Development, Inc.
February, 2001
Executive Summary

Information Technology was one of ten clusters identified in the Community Economic Development Plan as the type of business to attract and develop in Santa Fe. As Santa Fe Economic Development, Inc. (SFEDI) discovered through its economic gardening approach, these businesses did not need to be attracted to Santa Fe; entrepreneurs have created these businesses here or have relocated to Santa Fe on their own based on quality of life, not economic incentives or access to cheap labor.

The Information Technology sector is, according to industry experts, without a doubt, the most dynamic industry sector in the United States. Information technology companies can overlap many other clusters. “Information technology” appears to be a lot like “quality”; people know it when they see it, but it is not easy to define. SFEDI had divided the information technology into four sub-segments: internet businesses, telecommunications companies, software developers, and informatics companies. According to the Information Technology Industry Council, within the next 10 years, almost half of the U.S. workforce will be employed by industries that are either major producers or intensive users of information technology products and services.

SFEDI concluded that this cluster should receive economic development support because it adds to the diversity of the Santa Fe business community, it has the ability to bring dollars into the region, it provides quality jobs, and it maintains the special character of Santa Fe. Although these businesses hire locally where possible, many of the technical positions in this highly competitive industry are filled by recruits from outside the region. As the cluster continues to expand, the local workforce must obtain the necessary education and skills to deepen the
labor pool, thereby augmenting the overall regional competitiveness of the cluster and helping to raise the average wage in Santa Fe.

**1999 Average Annual Salaries in Santa Fe MSA**

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Through the ongoing efforts of the Board of Directors and the volunteers on the operating committees, SFEDI has agreed to

- assist the informatics sub-cluster to create an informatics trade association to serve their specialized interests,

- work with other organizations to create a National Informatics Conference to be held in Santa Fe in order to increase national awareness of our informatics companies,

- determine workforce development initiatives, including job shadowing and internships in Santa Fe to increase the number of local hires and bring this information to the Santa Fe Workforce Development Alliance for action, and

- collect baseline data (number of employees, average wages, and revenue) from the members of the cluster. SFEDI will gather this data annually to track growth.
**Evaluation of Information Technologies for Cluster Development**

**Cluster Identification**

The Community Economic Development Plan established the types of business to attract and develop in Santa Fe, including information technology companies. Through The Santa Fe Plan: The Cluster Approach to Economic Gardening, SFEDI has identified the Information Technology Cluster to be comprised of those businesses, including certain spin-off companies from LANL, NCGR, and SFI, that develop, manufacture, or sell products which are based on the “acquisition, processing, storage, and dissemination of information in all its forms (auditory, pictorial, textual, and numerical) through a combination of computers, telecommunications, networks, and electronic devices”\(^1\). By definition, this cluster is large and overlaps with other clusters both locally, as well as nationally (See Appendix A).

The information technology sector is, according to industry experts, without a doubt, the most dynamic industry sector in the United States. This is true for the Santa Fe cluster. New information technology companies are created everyday while others consolidate through mergers and acquisitions. Information technology companies can overlap many other clusters which poses a major challenge in developing quantifiable information and identification of companies whose primary business is information technology. “Information technology” appears to be a lot like “quality”; people know it when they see it, but it is not easy to define.

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\(^1\) Adapted from *MacMillan Dictionary of Information Technologies* (1985)
For purposes of this report and to measure outcomes of the cluster cultivation process, SFEDI had divided the information technology into four sub-segments: internet businesses, telecommunications companies, software developers, and informatics companies. SFEDI recognizes that there is overlap even among these sub-segments.

Internet companies are defined as those which provide products and services related to the internet, including web development and design, e-commerce solutions (e.g. shopping carts), internet hardware solutions and internet access. Some of the companies that specialize in multimedia (animation, video, and audio) on the internet also overlap into the New Media cluster, which includes traditional film and video companies and is the next cluster SFEDI will introduce to the cluster cultivation process. SFEDI has identified over 20 companies in this sub-segment.

Telecommunication companies, which specialize in hardware such as wireless, satellite, T1, ISDN, cable, DSL and phone systems, comprise a second information technology sub-segment. SFEDI had identified several telecommunication companies in the Santa Fe market, however, many of the smaller start-ups do not visibly publicize their business in order to avoid detection by the larger telecommunication companies. This is an important segment of the cluster because it supports the others, and greater competition will improve telecommunication products and services. This segment will continue to grow as the remainder of the cluster, as well as other local businesses, demand better telecommunications services and solutions.

Software developers, a third sub-segment, overlap many industries depending on the market for which they write software programs. There is also overlap with internet professionals among those companies that develop software applications for the internet. This sub-segment of the cluster is hard to identify until the
software is released. SFEDI will continue to identify software companies in Santa Fe.

Several of the local spin-off companies from LANL, SFI, and NCGR are developing greater expertise in the emerging field of informatics. Informatics is the science of developing computer databases and algorithms for the purpose of speeding up and enhancing information processing and analysis. As access to information is increasing for all businesses, the management of that data is becoming more and more important. The Informatics Cluster in Santa Fe, labeled “Info Mesa” by WIRED Magazine, is the fourth sub-cluster of the larger Information Technology Cluster and is comprised of 21 companies. According to the WIRED article, Santa Fe’s next claim to fame will be the impact these companies make globally to the complex field of information management.

Informatics technology is based on tools to interpret changes in the age of information which are happening at an increasing, less predictable ways. Santa Fe informatics companies have developed techniques over the past decade to extract key patterns from massive data flows. These techniques have now been applied to many areas in which massive data flows are being mined for profit and risk reduction - delinquency predictions in credit cards, fraud detection, price forecasting, chemical plant control, automobile control, drowsy driver detection, and many more.

Many of the Santa Fe informatics companies have developed algorithms pertaining to biological data, and therefore overlap with the biotechnology cluster in the niche market of bioinformatics. Santa Fe Economic Development first identified these as biotechnology companies, and therefore warn against double counting these companies and the job growth they have created in the past five years.
SFEDI confirmed that the Information Technology Cluster should receive economic development support because it adds to the diversity of the Santa Fe business community, it has the ability to bring dollars into the region, it provides quality jobs, and it maintains the special character of Santa Fe.

**Opportunities for Economic Diversity**

A major component of a healthy community is diverse economic opportunities for all of its citizens where quality (value-added) jobs are matched to workforce skills. In recognition that the government and tourism sectors provide the greatest number of employment opportunities in Santa Fe, the 1996 Community Economic Development Plan expressed the goal to diversify the economy and maximize the number of citizens that are able to participate in the positive aspects of a diverse economy.

The Information Technology Cluster is diverse and is impacting most industries in the United States. Future advances in business-to-business transactions will be driven, in part, by the development of this industry nationwide. According to the Information Technology Industry Council, within the next 10 years, almost half of the U.S. workforce will be employed by industries that are either major producers or intensive users of information technology products and services.

**Opportunities to Bring Dollars into the Region**

Information Technology is a global industry and revenue potential is substantial. More so than other clusters, the products and services created by Santa Fe information technology companies have local, national, and global markets,
providing this cluster the ability to bring dollars into the region by exporting their products and services. The financial impact of a strong cluster in Santa Fe would extend into many ancillary businesses that are created to support the cluster.

Phase-1 Molecular Toxicology Inc., an early spin-off company from NCGR, recently announced a large collaborative research agreement with Boehringer Ingelheim Pharmaceuticals Inc. of Ridgefield Connecticut to develop technologies to identify potential side effects to drugs before the patient is treated. Phase-1 will develop diagnostic tools to predict side effects given the high degree of variability in patient response to drug therapies. Phase-1, as the pioneer in molecular toxicology, has opportunity to greatly impact how drug therapies are chosen for patients, ultimately decreasing the risk of adverse responses.

BiosGroup's Prowess Software Division, a leader in the field of complexity science for business applications, recently released their e-commerce product suite, MarketProwess, a next-generation set of tools designed to dramatically enhance the value buyers and suppliers receive from e-trading hubs. On January 8, 2001 — B2eMarkets, Inc., provider of the first end-to-end, Web-enabled strategic eSourcing solution, announced a partnership with the Prowess Software to enhance decision support capabilities for users of their Strategic eSourcing Management™ (SeSM™) solution. This partnership enables SeSM™ users to make purchasing decisions using a broad portfolio of criteria, including both quantitative and qualitative factors.

These are just two examples of the ability of the informatics cluster to attract outside dollars into the Santa Fe region. To maximize these effects, the cluster must become less dependent on resources from outside the region, especially the labor pool. Although these businesses hire locally where possible, many of the technical positions in this highly competitive industry are filled by recruits from outside the region. As the cluster continues to expand, the local workforce
must obtain the necessary education and skills to deepen the labor pool, thereby augmenting the overall regional competitiveness of the cluster and helping to raise the average wage in Santa Fe.

Additionally, some Santa Fe Information Technology companies entertain clients from all over the world. The unique character of Santa Fe is important to the image these companies want to present to their clients. Although no statistics currently exist to support the claim, SFEDI believes the ability to showcase Santa Fe to international business leaders must certainly add tourism dollars to the local economy.

**Ability to Bring Quality Jobs to the Region**

Although Santa Fe Economic Development, Inc. supports the creation of jobs in general, it believes that businesses that create quality jobs should be supported through directed economic development activities. For the purposes of cluster cultivation, SFEDI defines quality jobs as those which

- Provide wage levels as high or higher than the local median wage,
- Offer favorable benefits packages,
- Make use of employees’ training and education,
- Show favorable career growth/advancement potential,
- Add to employer productivity and competitiveness,
- Have the potential to create spin-off companies, and
- Provide healthy and safe working conditions.

By this definition, the information cluster provides quality jobs. Information Technology companies offer wages higher than the local average:
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Most of the local information technology companies offer benefit packages including health and dental insurance, 401K plans, and paid vacation. Most of the professional and technical positions within information technology companies require specialized degrees and experience. The industry provides advancement opportunities within and among information technology companies, and the business environment is conducive to the creation of spin-off companies. The informatics companies are spinning-off new businesses at a very high rate. To the best of SFEDI’s knowledge these companies provide healthy and safe working conditions.

The Ability to Maintain the Special Character of Santa Fe

Progress in the New Economy is important to the mission of Santa Fe Economic Development, Inc. but never at the sacrifice of the quality of life or the character of Santa Fe. Most U.S. information technology companies are small, employing
under 50 employees. In Santa Fe information technology businesses tend to locate in the plaza area or within business parks resembling "campuses". This results in minimal impact on the overall look of the community. Environmental impacts of cluster growth on requirements for water, utilities, and other resources are well within acceptable levels.

Many challenges exist for information technology companies located in Santa Fe, yet it was a personal choice many of the owners/ founders of these companies made to be here. Considering that in this global industry companies can locate where they choose, SFEDI believes these businesses are motivated to maintain the character of Santa Fe not only because Santa Fe is their home, but because the charm of Santa Fe adds to the image they want to present to their clients. These companies contribute to the local tax base, showcase Santa Fe to international business leaders, provide quality jobs, and add to the quality of life in Santa Fe, but these same businesses ask little in return (e.g. incentives). By supporting these local businesses, Santa Fe Economic Development, Inc. is committed to helping these businesses face common challenges and seize common opportunities.
Information Technology Cluster Cultivation: Progress to Date

Cluster Activation

Action Steps Completed:

• The Information Technology Cluster had been activated with the creation of two trade associations: New Mexico Information Technology and Software Association (NMITSA) and the New Mexico Internet Professionals Association (NMIPA). Although formally organized, the cluster is still in the early development stage in terms of creating strategic advantages. Roundtable discussions conducted in September and October by SFEDI highlighted the need for local meetings to enhance the relationships of the Santa Fe information technology community. SFEDI has assisted in the organization of the Santa Fe Chapter of the New Mexico Information Technology and Software Association with the first meeting held in November, 2000. To maintain regional connections, the Santa Fe Chapter will meet every other month, alternating months with the meetings of all New Mexico members in Albuquerque. This will encourage attendance at both venues, strengthening important regional links.

• Roger D. Jones, Ph.D., CEO of Complexica, serves on the Board of Directors for Santa Fe Economic Development, Inc. and has been identified as the point person for the Information Technology Cluster for the purpose of providing expertise to SFEDI.

Next Action Steps:

• SFEDI has agreed to assist the informatics sub-cluster to create an informatics trade association to serve their specialized interests.
Cluster Support

Action Steps Completed:

• SFEDI, New Mexico Economic Development Department Office of Science and Technology and Los Alamos National Laboratory Technology Commercialization Office sponsored “Cultivating Entrepreneurs, New Mexico's New Cash Crop”, a half-day workshop of critical discussions for designing a dynamic business landscape for the decades ahead.

• SFEDI is strongly supporting the efforts of TRADE to improve telecommunications in the region.

• SFEDI is committed to hosting introductions between the information technology companies and representatives of the local, state, and federal government to increase the understanding of the cluster’s particular needs, as well as the role government plays in supporting economic gardening.

• SFEDI is working with other organizations to create a National Informatics Conference to be held in Santa Fe in order to increase national awareness of our informatics companies.

• SFEDI regularly attends networking such as Safari Club.

Next Action Steps:

• SFEDI will meet again with members of the cluster to determine workforce development initiatives, including internships in Santa Fe to increase the number of local hires. SFEDI will bring this information to the Santa Fe Workforce Development Alliance for action.
• SFEDI will encourage innovative approaches to improving economic foundations most critical to the information technology cluster especially in workforce development, improved telecommunications, and technology accessibility. SFEDI will hold joint forums of economic development organizations and other institutions providing foundational support to further develop innovative approaches.

• SFEDI will continue necessary involvement in the Santa Fe chapters of the New Mexico Information Technology and Software Association and the New Mexico Internet Professional Association in order to identify additional issues important to the cluster.

• SFEDI together with the information technology trade associations will collect baseline data (number of employees, average wages, and revenue) from the members of the cluster. SFEDI will gather this data annually to track growth.

• SFEDI will maintain links between regional venture capital forums and networking groups.

• SFEDI will establish appropriate and innovative ways of communicating to the high school students of Santa Fe that opportunities for quality jobs currently exist in Santa Fe and that SFEDI is actively seeking ways to increase the number and variety of quality jobs in the future.

**Cluster Expansion**

**Action Steps Completed:**

• Through the efforts of the New Business Recruiting Committee, SFEDI continues to refer companies that are interested in relocating to Santa Fe to representatives of like businesses already established in Santa Fe.
Appendix A: Overlap in IT Cluster