

**LINKAGES BETWEEN THE INFORMATION TECHNOLOGY
SECTOR AND “TRADITIONAL” SECTORS IN TAMIL NADU**

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ABSTRACT

The Information Technology (IT) sector is comprised of more than 760 companies, employing about 35,000 professionals in the state of Tamil Nadu. With its pool of skilled labor and high level of potential, firms in Tamil Nadu are both locally and globally competitive. This paper examines the linkages between the IT sector and traditional sectors of manufacturing such as leather, textiles and garments. It also looks at how IT is transforming the provision of services by the government. Through extensive firm-level interviews, we conclude that IT is transforming the accounting and financial management practices of firms and also revolutionizing traditional manufacturing processes with techniques such as CAD/CAM which can be used to control the cutting of cloth, thereby minimizing waste and losses. The Government of Tamil Nadu receives high marks for its promotion and facilitation of IT-related activities; access to credit remains an obstacle to firms which want to expand their use of IT.

This paper summarizes information collected from extensive interviews with firm managers in Chennai during the period July-August 2001, as well as from available published materials.

1. Introduction: Investment in the IT Sector in Tamil Nadu

The IT sector is comprised of more than 760 companies, employing about 35,000 professionals in the state of Tamil Nadu. With its pool of skilled labor and high level of potential, firms in Tamil Nadu are both locally and globally competitive. There are institutional advantages as well. For example, the Watts Humphrey Software Quality Institute established at Chennai in 1999 is the only one of its kind in India. Additionally, the Chennai chapter of the IndUS Entrepreneurs (TiE) was established in Jan 2000 and is actively contributing to the dialogue surrounding the IT sector. Several major conferences on the IT sector have been held in Tamil Nadu as well. Also various efforts are underway to promote the use of the Tamil language in this sector. And finally, the Tamil Nadu Industrial Development Corporation Ltd (TIDCO) has created a superb website (www.tidco.com) that contains up-to-date information on a variety of topics regarding the IT sector.

The state is also investing resources in the creation of IT parks. Foremost among these is TIDEL, containing 1.28 million sq. ft of area. TIDEL has modular floor layouts and wide span column design to match individual requirements. It has small, medium and large offices of 4585 to 89,000 sq.ft on each floor. A reliable power supply is provided through a dedicated 100kV substation and a 10.5 MVA DG set for providing a 100 percent backup. A large, state-of-the-art, central air-conditioning system is also provided as are energy efficient offices with double glazed glass curtain walls. TIDEL also has an exclusive 4000 line telephone exchange.

Tamil Nadu is investing in other IT parks as well. The IT park which has been conceived and developed by public sector national Small Industries Corporation (NSIC) is focused on attracting IT companies in the SME segment. The Rs.6- crore NSIC Software Technology Park (STP) situated at Ekkaduthangal in Chennai is also operational. Though the park will house both IT and IT-enabled services companies, NSICX is trying to encourage mainly software development companies to

set up base there. The park is spread over an area of 1.68 acres. It is located within the Guindy Industrial Estate and will have a built up area of around 94,000 sq ft. when fully completed. As is the case with other IT parks, facilities including a conference room, business center, cafeteria and ample parking space.

The state is making critical investments in training and education. As a first step towards making all students in the state “digitally literate”, an innovative public - private partnership program was launched in 1999 to make computer science available as an option in all Government Higher Secondary Schools in the state. By 2001, all 1197 schools in the State have been covered, producing 40,000 students per year with computer and Internet skills. During 2001-2002, 127 more Higher Secondary Schools that have recently been upgraded will also be covered. Further, 5 teachers per school per year in each of these schools including the Principal, are also trained in computer literacy skills. This program is fully operational, generating a large skilled pool of labor. Based on the success of the school program, a one-year computer literacy program for students in all 60 Government Arts and Sciences Colleges, all 11 Medical colleges, the only Dental college and in all 5 Law Colleges in the State was launched in 2000. This will cover about 30,000 students every year. This program will also include Internet skills. The program is fully operational as well.

The state is also making substantial investments in infrastructure. Eight agencies have already been permitted on a non-exclusive basis to create high bandwidth optic fibre cable networks that will cover every single district in the state. These are WorldTel Tamil Nadu Pvt. Ltd, BPL Broadband, DishnetDSL, Bharti Telesonic, Broadband Solutions of Enron Communications, Macronet Private Ltd. (subsequently renamed as Reliance Infocom Ltd.), Estel Communications Pvt. Ltd. And Bharti Telenet Ltd. This will make Internet access possible in every part of the state. TIDCO estimates that as many as 30,000 PCs are today available across the state in browsing centres/cyber-cafes for providing public access to the Internet. Tamil Nadu also has the highest rural telephone connectivity in the country with nearly 86 percent of villages covered. Various other ventures are underway to improve both rural and urban access. The Tamil Nadu Infotech Fund, a Tamil Nadu specific venture capital fund (www.elcot.com/fund.html) jointly promoted by the Tamil Nadu Industrial Development Corporation (TIDCO – <http://www.tidco.com/>), IL& FS Venture Corporation and SIDBI, has funded several innovative projects as well.

According to the TIDCO, the Government of India needs to take action on the following issues in order to advance the IT sector and the use of IT:

Rapid implementation of the Information Technology Act 2000 and Rules

A strategy for assuring universal Internet access together with domestic bandwidth on demand

Speeding up the progress of Telecom deregulation, particularly, opening up the local loop

Creating a new policy regime to enable delivery of low cost telecom and Internet services in rural areas through Rural Service Providers

Establishment of an Indian Institute of Information Technology and Management at Chennai by the Ministry of Human Resources Development.

2. Sectoral Linkages between the IT Sector and Other Sectors

There are several linkages between the IT sector and other sectors. Here, we explore some of the most important linkages drawing on observations made during our field research.

a. IT in Government

A state government web site, <http://www.tn.gov.in/> has been created to provide information of relevance to all citizens. This website contains various types of important information. All state level government tenders in English and Tamil are included in this web site as well as in other private web sites that host this content free of cost. This includes www.chennaionline.com , <http://www.aaramthinai.com/>, <http://www.southindia.com/> , <http://www.webulagam.com/> and <http://www.thegovt.com/>. Orders issued by every Secretariat Department in Government that are of direct relevance to the public at large are listed on the site as well. The website also statistical information about the state. In addition, it has more than 100 application forms in English and Tamil for use by citizens (<http://www.tn.gov.in/appforms.htm>).

A comprehensive database of all land records throughout the State has already been created. A set of application software for use at Taluk (Sub-District) and District level has been created, tested, finalized and has already been installed in all 206 Taluk offices. Pilot projects in four Taluks of the state for digitization of the cadastral maps have been completed. The different technologies used have been evaluated and specifications have been finalized. Depending on availability of funds, a statewide project may be started for the creation of a database of digitized land maps. Comprehensive guidelines for development of Geographic Information Systems (GIS) in government and the public sector have been issued by the Planning & Development Department (www.tn.gov.in/gorders/pndgo.htm).

Application software has successfully been developed, tested and commissioned for the Sub-Registrars' offices and District Registrars' offices (URL <http://igregn.tn.nic.in/>). This system has been made operational in 25 such offices (16 Sub-registrars and 9 District Registrars) and has recently been extended to 100 more offices. A further 184 offices will shortly be covered. Meanwhile, data entry work in these offices has been taken up and is expected to be complete shortly. Application software has been developed and tested for the Regional Transport Offices (RTOs), Zonal RTOs and the Transport Commissioner's office. This has been commissioned in 17 offices so far, and the remaining 65 offices throughout the State will be covered in 2001.

Testing of application software for assessment circles in the Sales Tax department (<http://www.tnsalestax.com/>) is almost complete and this system has been implemented in 140 assessment offices in Chennai and Coimbatore. These offices account for about 80% of the sales tax collection in the State. Other projects have also been initiated. A pilot project for tele-medicine between a state level tertiary hospital – Govt. General Hospital, Chennai - and a rural hospital – Walajah Taluk Hospital – has become operational. An IT project for police stations is under examination and will be proposed for consideration in 2001. Finally, a video-conferencing facility has been set up between the State headquarters and all District headquarters where ISDN is available.

b. Linkages between the IT Sector and “Traditional” Manufacturing Sectors

The use of IT is widespread in large firms in the leather, textile, and garments sector as well as in auto-component manufacturing and assembly. While systematic data is hard to find, evidence from field interviews gives us some insights into the types of linkages and their benefits for traditional manufacturing sector producers.

Several of the larger, more established firms that we interviewed for this study provided a variety of information on the use of IT. In the textile sector, firms reported using software in a variety of ways. One important area is marketing—one firm reported that it uses the Internet to interface with buyers by sending designs, colors and patterns electronically. One garment exporter mentioned that his firm's productivity and profits had risen because it had upgraded its technology. The firm had developed the capability to do everything in house—design, tailoring, production, merchandising and shipping. All of this was coordinated by technologically sophisticated methods. Another cotton producer and exporter mentioned that she had invested in IT ever since it became available in the state. She said that her firm began using computers in 1987 and that computerized accounting and other computerization had greatly enhanced productivity.

Several producers and exporters in textiles and leather mentioned that the use of e-mail had greatly cut down on their costs of communications, particularly with foreign buyers. Many mentioned that telephones and facsimiles machines had been replaced by computers with Internet and e-mail facilities. One firm mentioned that its marketing department was revolutionized by the use of computers. While the firm still participated in conventional trade shows, it was increasingly using the Internet to find buyers and place bids on orders that were posted. The IT section of this firm handled these activities and the company had invested in its own portal for this purpose. Also, many firms mentioned the use of CAD/CAM (Computer Aided Design/Manufacture) for the purpose of cutting fabric.

A major textile producer in Coimbatore mentioned that he had computerized his offices as early as 1980. He observed that his firm has realized gains in productivity from computerization for the past 20 years. He said that on average, computers and related systems are upgraded every five years, as needed. He also remarked that new machinery is increasingly sophisticated with computerized or electronic controls. These can be plugged into the firms computers. One project that was currently underway in his factory was attempting to link all the machinery together

in an internal network that was tied into the firm's computer system. This producer anticipated greater monitoring of production as a result of this project. The firm had also created a website for placing bids via the Internet, but had not yet begun to make extensive use of it. However, there was definitely a trend towards using the Internet for cotton yarn exports, according to this producer.

Other examples are revealing as well. A firm located in Ambattur Industrial Estate gave us a look at their efforts to modernize production. One year ago, they began using what they call a "re-engineering system", whereby they keep track of all the functions and movements associated with the production of any given garment – essentially a very detailed ongoing time-motion study for each garment. Newly installed IT equipment and software allow this, and is run by the firm's own engineers. The buyer sends a pattern via e-mail, and the R&D/engineering personnel use General Sewing Data (GSD) software to analyze and study the garment and identify all stages of production. The engineers will categorize each step of the production process to maximize efficiency and minimize or eliminate all unnecessary functions and movements. Although the assembly line itself is not reconfigured, the firm may install new equipment and/or machine attachments that allow the tailors to do the job according to the GSD program. In this first year of operating with this system, the firm required that all workers produce at 65% of what the GSD program advises is possible. This is the current minimum standard. Each year, they plan to gradually raise this benchmark; i.e. from 65% to 70% to 75% etc.

This firm also had some rather sophisticated equipment for drawing patterns. When the buyer sends the pattern electronically, the firm's engineers download it into a sophisticated drawing machine that draws out the pattern with perfect precision into life size for the cutters to use. Interestingly, with all this elaborate equipment, they have not reduced staff, and have actually increased their engineering and designer staff. They felt that the benefits in accuracy, quality, and timeliness more than made up for the additional labor cost. Several related improvements were made. The factory has also purchased new machines that permit individual tailors to perform more functions than could previously be realized. Financing equipment upgrades was not a concern for the firm; they are so large that the banks are not squeamish about dealing with them. Shipping is handled by the buyer, so this was not their concern. However, they added that if there are problems with Chennai port, they would ship through Tuticorin. The firm's facility was modern and well-ventilated.

Other firms reported cost-cutting innovations as well. The use of CAD-CAM patterns in one firm and the automated cutting of patterns has cut down on wastage. This firm said that ten years ago, when patterns were drawn manually, about 80 percent of fabric was used and 20 percent was wasted. Now, CAD-CAM allows more efficient cutting and plotting and fabric usage has increased by 5 to 10 percent depending on the type of garment. (Several firms reported that fabric usage was up to 85 percent because of the use of CAD-CAM technology). Related investments such as the use of voltage regulators have also helped to cut costs. This firm had successfully used the Technology Upgradation Fund for these investments. Other firms reported the use of quality control software to cut costs as well. One firm commented that CAD-CAM had enabled it to use 2 meters of fabric per shirt, rather than 2.5 meters. This firm has an electronic time card systems; workers are equipped with magnetized ID cards which they swipe when they clock in and out of their jobs. Also, within each major work station there is a computer with Internet access. If a buyer makes a call regarding the status of an order, the director can call up the area supervisor who signs on to the system, and gives real-time feedback to the buyer regarding the status of the order. Finally, several firms in various sectors reported using software to improve quality control; one firm said that they have a fully computerized quality control laboratory where shop supervisors enter quality/output data on an hourly basis to continually track results and error rates.

The use of IT in the smaller firms we interviewed was fairly limited. Some firms used computerized accounting methods but many firms we surveyed in the textile and leather sectors did not report any use of IT at all. The main obstacle appears to be *access to credit*. A senior official at the Cotton Textiles Export Promotion Council pointed out to us that in general, IT was not being adopted by smaller firms. Rather, these firms were focused on trying to purchase power looms, given their limited access to financing. While there are individual cases of small and medium sized firms being able to use IT to upgrade their production capacity and quality; this phenomenon is not widespread. One agro-processing firm that uses the very latest technology to export all of its production to Germany and Netherlands. It was able to upgrade with government assistance but the government has not been able to implement an IT-upgrading scheme on a large scale for small firms (which the government now defines as firms with an investment of Rs. 100 lakhs or less).

A senior official for Industries and Commerce pointed out to us that small firms have virtually no access to capital. He said that less than 40 percent of small firms have access to a bank; firms tend to rely on private sources of finance or self-financing to continue their operations. While access to credit is better in Tamil Nadu than many other states, small firms are still very constrained. Small firms need more interaction with product

developers, more access to product demonstrations of prototypes, and more investment in skill upgrading, according to the official we interviewed. He said that small firms are able to provide very little training to their employees; this compounds the problems of lack of access to technology and credit. Small firms typically invest between one and two weeks of training at the most, for any given fiscal year.

Other interviewees echoed these concerns. A senior official at the Small Industries Development Corporation (SIDCO) provided examples of small firms lacking access to technology. He said that a marble polisher he knew could not meet new industry specifications in the international market and also could not finance the purchase of new technology, thereby losing out to producers in Italy.

Our meeting with the chief of the Small Industries Development Bank of India (SIDBI) was very useful in providing further information regarding the issue of access to finance. The SIDBI official pointed out that small firms are charged the same rate of interest as large firms and that 85 to 90 percent of financing via SIDBI was provided to the smallest firms in the SSI category. The main problem, according to our interviewee, was that small firms suffered long delays in getting access to capital. He argued that small firms are very cash constrained and that firms often are unable to meet their working capital needs. Delays are caused by several factors including meeting many government requirements. The SIDBI official told us that small firms have to go through some 25-30 different "clearance" procedures to establish a business and that the new streamlined procedures existed mainly on paper. With regard to financing, some firms wait 15-30 days while others wait for more than a year! Compounding this problem is the perception on the part of banks that small firms will default on their loans. While we do not have exact numbers on default rates, our various interviews suggested that the rates of default for small firms can be as high as 75 percent; the reality is probably somewhat lower but still problematic.

Collateral is also a problem for small firms. The government has mandated that loans up to Rs. 5 lakhs do not require collateral and that the government will provide guarantees for loans up to Rs. 20 lakhs. However, given the high rate of default, banks seek out collateral anyway. All of this results in low or no access to finance. Therefore, we do observe even in our limited sample of firms, that only larger firms are able to upgrade technology in the manner described above. And this is of course not the only problem that small firms face. Our observations were that small firms tended to have more outdated equipment and facilities and more constraints in a variety of other areas.

c. The Government's Role in Promoting IT-related Activities

To be fair, it is important to note that the government is making a good effort to promote access to IT. Various institutions are trying to promote the use of IT. The TANSTIA-FNF Service Center (for small businesses) sells CD-ROMS to member firms and provides onsite computer facilities for small firms. They charge a nominal fee for this service. This institution has adopted a “polyclinic” concept; they offer general information as well as sector specific consultative services by engaging consultants on a regular basis. In particular, government institutions can help small firms market themselves better, via the Internet and other high technology options. This may in turn lead to better access to credit from banks which traditionally have done business only with large firms. One training institute we spoke with in Tirupur—NIFT-TEA Knitwear Fashion Institute—invested in training on CAD/CAM design and cutting of fabric, given the demand for this service by firms.

One of our interviewees mentioned that the central government was trying to increase IT-related credit. The Credit Link Technology Upgrading Scheme had created a fund of about Rs. 5000 crores specifically for technology upgrading in firms. About 12 percent of the loan amount is provided to a firm interest-free, and the remaining balance was lent at a very favorable rate of 4 percent. This scheme was not being used very much by small firms according to our interviewee, but Tamil Nadu is still better off than many other states in this regard. The Industries Commissioner pointed out that various models of technology adoption need to be pursued, particularly to enable small firms to adopt IT products. He said that local academia should play a bigger role, and that “prototypes” must be demonstrated on a regular basis to increase the adoption rate. Otherwise, it is too great a risk for individual firms. The Commissioner also pointed out that skill upgrading is crucial. Many firms lack the ability to use new technology; and individual small firms often lack the resources needed to invest in training their workers. The Chairman of TIDCO, in a wide-ranging interview, pointed out that the use of IT was crucial to the productivity of firms in Tamil Nadu. A key issue concerns how firms can make the transition from largely labor-intensive, low-skilled production to higher value added, more technologically sophisticated methods of production. The digital divide, according to him, had also created a rural-urban divide, that is very troubling. This exacerbated other problems that are creating a gap between the incomes of rural and urban people.

Some of the firms we interviewed were pleased with the government's efforts while many others suggested that the government needs to do more. One software company's Secretary mentioned that the government has provided good communication links, and offered some waivers that have enabled firms to compete effectively. Concessions regarding the employment of women were also appreciated by this firm. Other firms also mentioned that the government had been very cooperative for the sector. One official gave us an interesting example—when the Cable TV market began to emerge, the government needed to amend its current restrictive laws on cable. However, it recognized that this would have taken years to do, and this would have prevented cable services from breaking into the local market quickly. Thus, the government has essentially has been turning a blind eye to this sector and not enforcing legal restrictions. While this is probably not the best route to take, it does illustrate that the government is responsive to the needs of IT-related industries and is trying to promote the dissemination of new services. The government is also trying to encourage standardization in the IT sector, so that all systems can “talk” to one another.

Training in IT is also underway. According to the director of the Small Industries Service Institute (SISI), IT-related training is carried out by his institute “round the clock.” The director told us that small scale firms are also experiencing a trend towards more automation. However, they sometimes lack the capacity to produce the quantities needed by some buyers and or marketing skills for dealing in international markets. SISI was trying to provide training in IT and other areas (such as awareness of WTO rules) to meet these needs.

According to a high-level official at the Electronic Corporation of Tamil Nadu, the state is in a good position in the IT sector for three primary reasons: 1) highly educated labor pool; 2) physical capacity and 3) local language capacity which has allowed people to bridge the digital divide. He stated that the education sector had been very adaptable to recent changes in the IT sector and has been in an on-going process of curriculum adaptation. IT skill are also being pushed as entrance requirements for undergraduate level programs, thus suggesting that IT education is at least beginning at the high school level. He also stated that at the +1 and +2 levels of education, both JAVA and office programming was being made part of the curriculum. He added that each school has approximately 10 computers with two instructors, and that the government has contracted out for computer education services. In addition, even

science and art scholars are being pushed to take computer science courses within their program, and there is now a masters level program in the IT sector. In addition, there is now a two-year program in software design.

Most of the IT sector in Tamil Nadu is software – about 80% - with the remaining 20% in hardware related products. Hardware products include printers and PC boards; it was mentioned to us that the software market has been in a boom market, but has of late experienced a bit of a slump, probably because of the slowdown in the U.S. Another set of services that is IT related and growing in Tamil Nadu is call centers and transcription services for doctors and lawyers. There is a great deal of high-end software being developed for these services, and in some of the small firms there is work underway with wireless communication as well.

Tamil Nadu is well positioned for growth in the IT sector as well as in sectors that use IT. Manpower is strong, so this sector can even afford to replace those IT professionals who have left to work abroad in countries (i.e. U.S.) that offer better salaries. Also, our interviewees mentioned that there is a great deal of work underway with regard to R&D. The low-end sectors (such as call centers) were likely to continue expanding as well as the high-end sectors (chip sets/designs). But there are also gaps. While some firms are more productive and competitive as a result of their use of IT, many of our interviewees mentioned that others (particularly small firms) are unable to compete. Smaller firms simply cannot afford a major overhaul of their equipment so as to compete with newer, high technology operations. Piecemeal replacement of equipment simply does not work in many cases. Small firms overwhelmingly reported lack of access to timely credit as a problem (this will be elaborated upon in another paper). The fear is that small firms will be squeezed out as IT-equipped firms become more competitive.

Certain sectors are particularly important. In auto parts, there is an increasing need for higher tolerance parts. Cars are also becoming more technology-intensive and the auto parts sector needs to be geared to meet this changing need. Textiles, leather, and knitwear are all sectors where small firms need better access to IT. The entertainment industry is a heavy consumer of IT, particularly since Tamil Nadu is carving a niche in areas such as digital animation. Some organizations, such as CII, are paying attention to the use of IT by small firms, but this problem must be addressed as trade barriers fall and India tries to comply with the WTO's rules. One issue that also must be addressed—Tamil Nadu needs its own fiber-optic cable link. Currently, it is dependent on Mumbai or Cochin for

this service.

d. The Emergence of New IT –related Activities

The emergence of new sectors and activities must also be noted. One firm we interviewed was planning to get into several new products—software for courier firms, security firms, corporate cleaning and janitorial services, aerospace (maintenance-related activities), alarm systems, office and home security systems, and personal alarms. The manager of this firm argued that these were areas that firms were yet to enter into in Tamil Nadu, that small firms could compete effectively in these areas, and that the skills and language capabilities of his labor force were strong assets.

There are several new examples of IT related activities on the TIDCO site and in various newspapers that serve to illustrate the wide variety of linkages in this sector. For example, the US- based Infac Group is in negotiations with Intel Corp, trying to get the world's largest micro processor firm to set-up its assembly and testing facility at the Advanced Technologies, Manufacturing and Assembly City (Atmac), a hi-tech industrial park being promoted at Nanguneri near Tirunelveli in South Tamil Nadu. Atmac is a joint venture between the California based Infac Group and the Tamil Nadu Industrial Development Corporation (TIDCO). Atmac believes that the chip maker could meet not only domestic demand, but also cater to the export markets from the Nanguneri facility. The park will house different pollution free industries including electronics, telecom, computer hardware, software development, agro-based industries, bio-tech industries, pharmaceuticals and food processing; all of these sectors will use IT in their activities.

Other new projects are underway as well. Bharti Enterprises and Singapore Telecom have announced a \$650 million project to set up a submarine telecommunication cable network between India and Singapore. In what could well be India's first private sector undersea optic fibre cable network, the maximum transmission capacity of the network will be 8.4 terabits per second. The first phase of the project envisages laying the cable between Chennai and Singapore by December 2001. This will be followed by another link from Singapore to Mumbai and then Mumbai to Chennai, which could either be a sea or surface link.

Alcatel, the French telecommunication company, has been selected to design, manufacture, install and commission the first link. The value of this project contract is around \$250 million. Alcatel will execute the project in association with Fujitsu of Japan.

A venture named Bharti Aquanet has been formed to commission and operate the project. It will have a direct 65 per cent equity from Bharti Televentures, a subsidiary of Bharti Enterprises, and 35 per cent equity from Singapore Telecom. Singapore Telecom will in effect hold a total of 50 per cent stake in the new company, as Singapore Telecom already holds a 20 per cent stake in Bharti Televentures. The chairman of Bharti Enterprises has said that the first link of the project between Singapore and Chennai would be commercially operational by the end of next year. The first link will have a transmission capacity of 160 gigabyte, this will be increased gradually to the optimum capacity. The chairman has also said that the project will be the largest infrastructure project between an Indian company and a Singaporean company.

The Ford Motor Company is also making further investments in the state. Ford Information Technology Services India (FITSI), the IT venture of Ford Motor Company has launched operations in Chennai even as the auto maker signaled its interest in acquiring a stake in two IT firms--Satyam Computers and Covansys. FITSI's 80,000 sq ft software development center at Tidel Park (Chennai) is expected to serve as the hub for the auto major's technology initiatives in the Asia Pacific region. Ford has reportedly spent \$25-50 million last year in the Asian region for its technology initiatives. FITSI will develop Web initiatives, CAD/CAM, call center and e-mail processing. Ford Asia Pacific will be the first client to implement region wide e-business solutions, based on FITSI's work. Two immediate projects to be done from the center would include Net-based applications and solutions for bio-connection systems.

Ford's associate car companies including Jaguar, Land Rover, Mazda and Visteon (now spun off) would also benefit from the IT-based applications developed at Tidel Park. The director of IT for Ford Asia Pacific and Southern Africa said that Chennai was selected for Ford's IT related activities for the following reasons--pro active support from Government agencies, the availability of reliable infrastructure, the presence of some of the best technical colleges, a strong work ethic, and the provision of superior technology office space at Tidel Park.

Rural areas are also benefiting from IT-related activities. There is enormous scope for IT to enhance agricultural and rural productivity and growth, as this example demonstrates. An innovative project serving rural areas is being implemented by the Murugappa Group's flagship company, EID Parry, in association with nLogue Technologies, a rural communication technology diffusion firm set up under the aegis of the Telecommunications and Computer Networks(TeNet) team of IIT, Madras. The project is aimed at bridging the Digital Divide the Internet between urban haves and the rural have-nots. Two key factors that make this project work are the corDECT Wireless Access Technology (which allows simultaneous flow of voice and data on a single line at a much cheaper rate than previous facilities) and the unique franchisee model, which puts the farmer in the driver's seat. CorDECT is a wireless access technology developed by IIT – Madras, and commercialized by Midas Communication Technologies, Chennai.

According to EID Parry officials, the corDECT system was developed with the Access Centre at Nellikuppam, where the 150- year-old Parry sugar factory is located. Since then, about 40 Internet connections have been made with villages surrounding the area. Fourteen of these connections are located in kiosks run by franchisees, who are farmers selected locally. In the next few months, the facility will be extended to another 150 surrounding villages in a 25 km radius; this enhancement will benefit over 25,000 farmers in the region. The kiosks are not the ordinary Internet surfing centers which city-dwellers typically use. Most of the kiosks are set up at the home of a farmer selected by the company on the basis of his credentials. Each kiosks has a corDECT wall set, a PC, printer, telephone, furniture and a power source with a backup. The company at present is providing the facility free of cost, but plans to charge the farmers once the project takes off. Parry has developed a first-of-its-kind portal www.indiaagriline.com, which can be accessed by farmers through the kiosks. The content of the portal covers seven topics such as details about farm practices, farm business, farm advisory services, the prices of different crops in nearby markets, weather reports etc. The portal also offers detailed information about six crops including sugar, banana, cashew, tapioca and groundnut.

The portal also has personalized content like the details regarding payment by the sugar company to farmers and other generic local content like finance schemes available with local banks, and higher secondary examination results. While farmers can access the generic information

from any of the kiosks freely, they need to register with kiosk for accessing personal information. According to Parry officials, the project not only hooks the farmer to the telephone network but also to the Internet at a speed of 28-64kbps. The facility is slowly changing the life of the farmers, who instead of traveling to the company or other places to get their business done, now walk into the neighborhood kiosk and click a mouse to get the information. A local sugar cane grower who runs the village kiosk in Pagandai says that farmers are realizing the potential of web technology. Nearly 50 farmers from the surrounding area visiting the kiosk at his house and making use of the technology to access vital information. Other franchisees comment that the technology has saved farmers time and trouble, and enabled them to acquire information quickly and efficiently. The project is currently Intranet-based but hopes to become available via the Internet shortly.

APPENDIX

INFORMATION TECHNOLOGY INDUSTRY POLICY OF Tamil Nadu 1997

G.O.MS.No.300, IND (MIE.2) DATED 3rd NOVEMBER 1997

ORDER

Information Technology Policy of Govt. of Tamil Nadu

INTRODUCTION

The Information Technology Industry in India is a fast growing segment of the Indian economy, with growth rates exceeding 50% per annum. In 1995-96, the Indian Information Technology Industry comprising hardware, software, peripherals and training had a turn over of Rs. 9037.85 crores. The Hardware Industry in India has mainly catered to the needs of domestic consumers, with only marginal exports. On the other hand, 60% of Software revenues are from exports, and the main growth is in this sector.

Tamil Nadu's contribution to the I.T. industry has been significant . The key elements which have made Tamil Nadu an important player in this area are availability of skilled and educated manpower, comparatively higher standard of educational institutions, reasonably good infrastructure, and lower costs of operation. Apart from these, the presence of an International Airport and a major Seaport in Chennai have also helped the growth of I.T. industry in Tamil Nadu. After the liberalisation process in 1991, and especially after reduction of import duties on hardware in July 1996, Multinational Companies were able to export large volumes to India, thereby boosting the domestic market for both hardware and software. Despite all these advantages, Tamil Nadu accounts for only 7% of the total revenue from hardware and software in the country. The turnover of the industry in Tamil Nadu in 1995-96 was Rs. 289 crores of which Rs. 139 crores was in hardware and Rs. 150 crores in software. The potential for growth of Information Technology in Tamil Nadu is enormous with I.T. penetrating all spheres, including Government Departments, educational institutions, Banking, shopping entertainment and a whole gamut of other consumer applications. The Industry while drawing up the programme for the IX Five Year Plan has projected that by the year 2001-2002, I.T.revenue in Tamil Nadu will be of the order of Rs.

13,000 crores (Rs. 5000 crores in Hardware and Rs. 8000 crores in Software). The industry has predicted that this level of achievement can be obtained provided the State Government announces and implements an industry-friendly I.T. policy. With the aim of achieving the goals spelt out in the IX Plan and to focus attention on the I.T. Industry as an engine of growth in the State, it has been decided to formulate an industry – specific policy for the I.T. Industry.

OBJECTIVES OF THE I.T. POLICY

The main objectives of the policy are :

1. To encourage and accelerate the growth of hardware and software industries and associated services in the State and to remove the bottlenecks for starting and running of such Units in Tamil Nadu.
2. To increase both domestic and export earnings of software and hardware sectors in the State.
3. To upgrade and develop manpower skills required for the I.T. industry by facilitating training, to accelerate the use of I.T. in schools, colleges and educational institutions with a view of providing skills and knowledge to the youth to make them fit for employment in this sector.
4. To upgrade the quality of life the citizens of the State by facilitating access to consumer application of Information Technology.

As part of the above objectives, the Government will also encourage use of I.T. in Government institutions and Departments with a view to improving productivity and efficiency of Government services, revenues and tax collections, and assist in the process of decision – making by Government, and monitoring of Government programmes. A high Power Committee headed by the State Finance Secretary has been constituted to draw up a plan for phased use of I.T. in Government Departments. A separate policy paper will be prepared on this for speedy implementation.

EXISTING INCENTIVES AVAILABLE TO THE INDUSTRY

1. There is no system of Entry Tax or Purchase Tax in Tamil Nadu. I.T. Industry will continue to enjoy facilities of unrestricted movement of capital equipment including hardware, peripherals, captive power gensets, UPS sets and Telephone Exchanges, subject only to Sales Tax payments as per orders in force.

2. Due to self sufficiency in power, Tamil Nadu does not have power cuts for industry. The facility of uninterrupted power will continue to be offered to I.T. industry.
3. Tamil Nadu has already announced fiscal and tax concessions for investments of various slabs starting from an investment of Rs. 50.00 crores (mega projects) upto investments exceeding Rs.1500.00 crores (super mega projects). The orders issued in G.O.Ms.No. 43, Industries, dated 13.12.1992 (for 'mega' projects) and in G.O.Ms.No.1, industries dated 2.1.1996 (for 'super mega' projects) will be applicable for I.T. industries also in addition to other incentives.
4. Capital subsidy as applicable to electronics industries @ 20% of fixed assets subject to a maximum of Rs. 20.00 lakhs will be available for all I.T. industries, irrespective of their location in the State. Where the unit is also eligible for capital subsidy for backward or most backward areas, this special subsidy will become part of such subsidy. The existing incentives available for industries employing at least 30% of women workers will also be available to I.T. industries.

NEW INITIATIVES

1. The State Government will set up Information Technology Parks (ITPs) at Chennai, Coimbatore, Tiruchirapalli and Madurai in a phased manner through ELCOT during the IX Plan period in association with the private sector. The ITPs will have full-fledged facilities with adequate modules for software development as well as sites for non-polluting hardware units, commercial and residential areas, schools, Convention and Business Centres as well as the connectivity required for communication and information exchange globally.
2. Apart from ITPs in the Government and joint sectors, Government will facilitate setting up of ITPs by the private sector in potential locations for the development of I.T. industries. Private ITP developers will be given assistance in land acquisition and re-zoning, wherever required, by State Government. State Government will also facilitate provision of water, power connection and roads. State Government will also help the ITP promoters in obtaining necessary cable and satellite links through VSNL/ DOT for the necessary connectivity. An ITP will be treated as an "industry" and be eligible for backward area capital subsidy and ST benefits.
3. The Government will provide assistance to VSNL and Department of Telecommunications to expand communication links in the State and also provide the land and power wherever required by such agencies. State Government will liaise with Govt. of India to ensure dedicated VSNL

connectivity / Earth Stations as well as Electronic Telecom facility for each ITP.

4. All ITPs set up by private promoters will have the same status as ITPs promoted by Govt. agencies for the purpose of eligibility for the concessions / incentives granted by Government from time to time to SIPCOT, ELCOT, TIDCO and TACID industrial estates, subject to conformity to certain quality standards, and subject to location (whether backward / most backward area). Units in private ITPs will be entitled for exemption from stamp duty and registration charges at the time of allotment of sites / built up space as in the case of units in ELCOT / SIPCOT industrial estates. Private ITP promoters will be granted exemption of tax for works contracts within the complex as in the case of SIPCOT / ELCOT, etc. Software / hardware units set up in private ITPs established in accordance with the standards prescribed by the Government will enjoy the same facilities and incentives on par with units in Government industrial estates.

5. In all the Technology Parks set up by Government & Joint Ventures, there will be an Executive Authority of the Park which will function as the Single Window for all statutory clearances required for the units, within the Parks. In the case of private sector Technology Parks, ELCOT will assist in getting all clearances fast.

6. Apart from development of software and hardware Industry through ITPs / STPs the Government will also encourage software development outside the Parks by giving such stand-alone units the same incentives as the Units in the ITPs / STPs. There will be no locational restrictions for setting up units exclusively engaged in software development / training.

7. All software industries including Services and Training Institutions in I.T. will be entitled to "Industry" status. Such units shall be eligible for all concessions and incentives applicable to Industries. For the purpose of this clause, accredited Training Institutions will also be eligible to claim industry status, subject to certain norms which will enable them to obtain Term Loans and Bank Finance at industry rates.

8. Government will provide continuous power supply in industry rates to all I.T. units, whether set up in ITPs, or in stand-alone locations, and also ensure quality of power as required by the industry. Software Training units will also be eligible for these facilities.

9. For the purpose of power tariff, maintenance and servicing units and hardware units will be treated as Industrial and not Commercial consumers and electricity staff as applicable to Industry consumers will be charged.

10. All software industries will be exempted from the purview of Tamilnadu Pollution Control Act. Hardware units will require clearance from Pollution Control Board as applicable to other industries.

11. Government of Tamil Nadu will also facilitate setting up of a T-Net with an "Information Back bone" connecting all District Head

Quarters, using the Cable T.V. network all over the State whose penetrating at present is 4 times that of Telephone lines.

12. Government of Tamilnadu will encourage setting up of Venture Capital Fund for development of I.T. Industry through TIDCO in association with private sector partners.

HUMAN RESOURCES DEVELOPMENT

A subgroup set up to discuss the prospects of the Information Technology Industries in the IX Plan period has assessed the man power requirements for the industry. The subgroup has estimated that Tamil Nadu could account for 20% of the total manpower in the Information Technology Industry by the end of the Plan period. The following are the policy initiatives planned for Human Resources Development in Information Technology :

1. Government of Tamil Nadu will set up an Information Technology Institute of Tamil Nadu (TANITEC) to take care of the training and technology upgradation aspects of I.T. in the State. The Institute will also co-ordinate in preparation of syllabus for I.T. courses in Colleges and Technical institutions, create Centres of Excellence in Universities, and also support funded research programme and specific technology applications.
2. Training Institutes for hardware, software, servicing and maintenance will be deemed to be "Industries" and will be eligible for all facilities offered to Industries including Bank Finance and SSI or IEM registration. Certification for Software training will be governed by existing standards prescribed by the Department of Electronics, Government of India. For quality certification of training in hardware, servicing and maintenance ELCOT will be the Nodal Agency to prescribe minimum standards for eligibility.
3. Basic training in computers will be introduced in all schools from the high school level. The endeavour will be to cover all schools within a 5-year period. Training of teachers will also be done in a phased manner over the 5-year period. In addition to Government sponsored training programmes, State Government will facilitate and co-ordinate with other sponsors like INTEL, IBM, APPLE, etc., for training of teachers.
4. Government of Tamil Nadu will encourage I.T. industries to obtain ISO 9000 process certification. Small Scale Industries (SSIs) will be eligible to claim the incentives offered by TIIC for obtaining such certification.

SPECIAL ASSISTANCE FOR INFORMATION TECHNOLOGY INDUSTRIES

1. Government of Tamil Nadu will offer relaxation of FSI (Floor Space Index) in metropolitan areas to the extent of 50% for IT. Parks.
2. Government of Tamil Nadu will co-ordinate with Government of India facilitate setting up of 'Internal Container Depot' to take care of exports of specified industrial products through Chennai Port, including products of electronic and hardware units.
3. Government of Tamil Nadu will facilitate setting up an Air Freight City near Chennai Airport, for improving the cargo movement for imports and exports from Chennai Airport. The Air Freight Centre will have sufficient space for handling equipment and necessary facilities for customs clearances, with staff posted round the clock. Such a centre will be formed as a Joint Venture between TIDCO, TACID, and FIEO. With these facilities, Government of Tamil Nadu will facilitate a 72-hour cycle for import of components and export of finished products by the hardware units.

SPECIAL SUBSIDY FOR MEGA PROJECTS

- i. An industry set up anywhere in Tamilnadu having an investment of Rs.50 crores and above and below Rs. 100 crores is eligible for a Capital subsidy of Rs. 25 lakhs.
- ii. An industry set up anywhere in Tamilnadu with an investment of Rs. 100 crores and above and below Rs. 200 crores is eligible for a subsidy of Rs. 50 lakhs
- iii. An industry set up anywhere in Tamilnadu having an investment of Rs. 200 crores and above is eligible for a Subsidy of Rs. 100 lakhs.

SPECIAL CONCESSIONS FOR SUPER MEGA PROJECTS

- i. They will be eligible for Sales Tax deferral / waiver for 14 years. The Company can exercise its option either to avail deferral / waiver.
- ii. The limit of only one revision of the Eligibility Certificate as stipulated in Government Letter Ms. No. 1414, Industries (MIG-2) Department dated 14-12-1990, will not be applicable to Super Mega Projects. They are permitted a maximum of Five number of revisions of the Eligibility Certificate. The Eligibility Certificate indicates the investment made in fixed assets upto the date of its issue and represents the Eligibility Limit for availing Sales Tax Deferral / Waiver at any point of time. Once the "Investment Limit" and "Time Limit" for making the investment as specified for 'Super Mega Project' are reached, the Company will be eligible for the concessions indicated in subparas (iii) and (iv) below.
- iii. These companies can continue to avail sales tax deferral / waiver upto the specified period of 14 years, even if the quantum of Sales Tax Deferral /

- Waiver availed reaches the limit of 100% of the value of installments in fixed assets the Super Mega Project before 14 years.
- iv. If the quantum of Sales Tax Deferral / Waiver availed by these companies does not reach the limit of 100% of the investment in fixed assets for the Super Mega Projects by the end of the 14th year, they can continue to avail Sales Tax Deferral / Waiver for a further period not exceeding 7 years or till the limit of 100% of the value of the investment in fixed assets for the Super Mega Project is reached, whichever is earlier.
- v. The deferred sales tax will be repayable in 5 equal annual investments as follows :

Sales Tax deferred in Year 1 will be repayable in 5 equal annual installments from Year 15 to Year 19 ; Sales Tax deferred in Year 2 will be repayable in 5 equal annual installments from Year 16 to Year 20 and so on. The deferred amount repayable in any particular year will be paid in 4 equal quarterly installments before the last day of each quarter.

Existing Industries taking up expansion / diversification, at their existing plant location / sites or at new sites, for which investment in fixed assets exceeds Rs.1500 crores (excluding the investment already made) within a time frame of 5 years (relaxable upto 7 years in special cases), will also be eligible for the concessions referred to in sub-para (i) to (v) in para 2 above, provided they satisfy the additional turnover norms for expansion / diversification.

ADDITIONAL SUBSIDY FOR EMPLOYING WOMEN WORKERS

New industrial units (small, medium or major) where more than 30% of the total workers employed are women shall be eligible for an additional Capital Subsidy of 5% of investment in fixed assets subject to a ceiling of Rs. 5 lakhs.

SPECIAL SUBSIDY FOR ELECTRONICS INDUSTRY

Electronics – 20% of fixed assets subject to maximum of Rs. 20 lakhs.

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