Analysis of Case Studies

Case studies provide a flavour of how e-Governance is put into action, what works and what doesn't, innovation, design, lessons learnt, etc. They show the ability of the State Governments to conceive programmes for e-Governance. A mix of theoretical frameworks is used to evaluate the new initiatives on offer and how they are different from the existing ones. We would be evaluating the case studies not only on the basis of whether the projects empower an unserved segment of the population or whether adequate value addition is obtained in these projects, but also on the basis of sustainability, scalability and replicability of the project within the State.

Development is a holistic term, which includes conformity with parameters of freedom. One of the important ways of evaluating the role of IT would be to view its role in 'Capability Enhancement'. The evolution of Amartya Sen's 'Capability approach' has it roots in the development discourse that has been the hub of ever-changing ideas. The indirect role works through the contribution of capability expansion in enhancing productivity, raising economic growth, broadening development priorities, and bringing demographic changes more within reasoned control. The direct importance of human capability expansion lies in its intrinsic value and its constitutive role in human freedom, well being and quality of life. It treats human beings as goals/ends in themselves and not merely as a means to securing higher income and growth. Development, in this view, is the process of expanding human freedoms, and the assessment of development has to be informed by this consideration.

Thus, what is extremely important while judging policies or programmes is their ultimate impact on human capabilities and not just the impact on economic growth. What is important is whether the unserved or underserved are being catered to or empowerment of the marginalised section is happening. This is essentially the policy implication of the Capability Approach. It is suggested that the holistic view of development provided by Sen's capability approach justify its adoption for the current analysis.

Brown's (1991) information-based evaluation methodology is sensitive to context-specificity and looks at whether value is added to the information or whether information is being used to realise either tangible or intangible benefits.

The 'Sustainability' aspect of the e-Governance project is examined by examining whether the initially 'attractive user charges' are sufficient to earn an Internal Rate of Return (IRR) equivalent to the cost of subsidised capital inputs. When the User Density increases or matches the threshold level, User Charges become an attractive proposition to earn an IRR equivalent to the cost of unsubsidised capital inputs and is thus able to attract private sector participants.
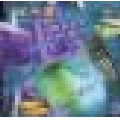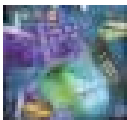
The framework is succinctly traced below:

Table 24: The Framework for Evaluation of ICT Initiatives

Approach	Essence of the Approach	Yardstick to Evaluate Outcome/Output	Indicators
Sen's Capability Approach	Whether unserved, underserved are being catered to or empowerment of the marginalised section is happening	- Increase in productivity - Gender sensitisation - Participation of females - Human development	- Increase in productivity (labour, capital and total factor productivity) - Extent of coverage (Geographical & Income group), - Demographic influences, - Female participation
Brown's Information Based Evaluation Approach	Whether value is added to the information or whether information is being used to realise either tangible or intangible benefits or maximisation of utility of information	- Increase in income, - Reduction in variance of monthly income receipts - Market risk reduction, - Institutional and micro finance availability	- Increase in income, - Improvement in delivery mechanism, - Market risk reduction-e.g. provision of storage space to farmers, e-kiosks for rural banking, covering distance areas, - Proportion of institutional finance in total debt
Sustainability/ Scalability/ Profitability	Ensure that the project is not transitory; should be sustainable with a purposeful mission attached to it such that it serves that cause of the state.	**Sustainability:** Weighted cost of funds for operation of schemes subsidised by the government can be met by even very attractive user charges **Scalability:** would be seen by how far the program can be expanded region-wise/ stakeholders -wise such that IRR meets the subsidised weighted cost of funds **Profitable:** When user charges and user profile reach a threshold level and cost recovery yields IRR that exceeds the weighted cost of capital at non-subsidised rates.	- PPP, - Viability Gap funding, - **Sustainability:** Financial IRR and reduction in viability gap funding over the time period - **Scalability:** IRR equals the subsidised weighted cost of funds. - **Profitable:** IRR is same but weighted cost of funds comes down due to economies of scale and scope.

Caveat

No field survey to identify the impact of the e-Governance initiative was conducted across the country as it was not within the scope of the report. Care was to taken to include those initiatives, which have been in operation for more than a year as these are expected to last through the initial period.

Case Study 1:

Akshaya –An IT dissemination Project
An Initiative of the Kerala Government

The Akshaya project is the first district wide e-literacy project in India and one of the largest known Internet Protocol (IP) - based wireless networks. It leverages the comparative advantage of Kerala's high rate of literacy and "progressive" social framework along with an already advanced telecom infrastructure. It aims to achieve the twin goals of social development through access to computers in rural areas and financial viability through market - driven entrepreneurship.

However, tension between these goals within the State, and for entrepreneurs and potential consumers makes it difficult to run a financially sustainable ICT kiosk project that also meets social development goals. The difference between consumers and entrepreneurs' perceptions and the ways in which each group defines and prioritises social development and financial sustainability complicates the implementation of the project.

Also experiments of creating entrepreneurship through "Franchise Model" and looking at the programme as another avenue of "employment creation" were self-defeating.

4.1.1 Background

Nearly 1.5 million Malayalees live outside India and they send home more than $785 million a year by way of remittances (Zachariah, *et al* (1998). This is especially so in Malappuram district which has the highest rate of emigration. Since most of the overseas based workers leave their families behind in the villages, there was an emerging demand for Internet-based personal communication services. Also, basic education was considered a bonus for migration, but it was increasingly felt that, even for small jobs, some computer skills could enhance employability. Hence, the demand for the Akshaya initiative originated from the local communities.

Akshaya Initiative-Community demand sparked off the initiative

The Akshaya project in rural Malappuram has been designed to leverage Kerala's unique strengths - active community organisations, 'progressive' social framework, advanced telecom infrastructure and widespread media penetration. It is the first district-wide e-Literacy project in India, and one of the largest known Internet Protocol (IP) - based wireless networks. The Akshaya project was implemented by the IT Department, Government of Kerala, to extend the benefits of ICTs to all citizens. It was a public-private collaboration to impart basic computer training to at least one representative from each household as part of its mass e-Literacy drive. In the first phase, it would impart e-Literacy to at least one member in each of the State's 6.4 million families. The second phase of the project had very ambitious objectives of creating and leveraging IT infrastructure in the State for e-Governance.

4.1.2 Key Objectives

-   To develop networked Multi-purpose Community Information (Akshaya) Centres to provide ICT access to the entire population of the State
-   To make at least one member in each family e-Literate
-   To develop infrastructure to provide sustained e-literacy and other facilities like email and Internet telephony
-   To accelerate the development of local content relevant to the population.
-   One of the primary differences between Akshaya and other projects is its scale of operations. It covers the 33 million population of Kerala and aims at making 6.5 million persons e-Literate.

Thus, the Akshaya project has three focus areas:

1. Facilitate the access to technology for all sections and regions;

2. Develop competence and skill-sets to enable use of IT by all sections of society, and,

3. Content provision in Malayalam on topics of local relevance.

4.1.3 Project Formulation/conceptualisation at the Grass root level

Akshaya had a grassroots beginning. The seed of the project was sown when the village councils (panchayats) in Malappuram, northern Kerala, approached the Information Technology Minister in April 2002 with a proposal of setting up Government-backed computer education programmes. This was mainly because local computer education "shops" were charging exorbitant prices from the citizens for computer usage, email, chat and phone calls. The proposal was sent to the IT Mission specifically set up to harness the IT opportunity for Kerala. The Panchayats were also ready to contribute funds for the "one computer literate per family programme" designed by the IT Mission. Thus, it was decided to set up a network of tele-centres that could provide a range of ICT based services to rural citizens and Malappuram was used as the initial test-bed, with the end goal of replicating the project throughout the state. The idea was to layer the computer training with a State-supported network of public computing points, so that people had the opportunity of taking their learning to the next level.

4.1.4 Business Model

The Akshaya project was conceived as a Public-Private Partnership (PPP) but the panchayats were extensively involved in the implementation of the project. The programme had two primary elements: Government - subsidised e-literacy training for one member of each household in Kerala, and, an ongoing partnership with local entrepreneurs to provide public access to ICTs,

Internet connectivity and services through Akshaya centers.

4.1.5 Selection of Location

The selection of the location was based on multiple criteria. Easy access to the Centre was the major consideration - the Centre was to be available to a family within a maximum distance of 2 Km. While identifying new locations, existing computer centres were considered for conversion into Akshaya centres based on suitability of location. The selection of location also involved checking the availability of power and telephone connections.

4.1.6 Selection of Entrepreneurs

The chief criteria for selection of entrepreneurs to run the Akshaya project was the candidate's previous entrepreneurial experience, IT familiarity and local knowledge. The aptitude of the person and his ability to invest the requisite capital for the venture as well as the entrepreneur's commitment were other considerations.

The local bodies selected the entrepreneurs through interviews. The selected candidates underwent a training programme, which acquainted them with the objectives and methodologies of running the Centre.

4.1.7 Role of State Government and Entrepreneurs

The State Government managed the Akshaya project through the Kerala IT Mission (KITM); village panchayats were responsible for running the kiosks in coordination with the district administration. Private entrepreneurs run the Akshaya centres with technical support from the Akshaya network management team deployed in the district headquarters.
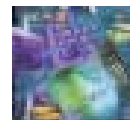
The departments / agencies involved in the project are:

S.No	Name of the Department/Agency	Roles and Responsibilities
1	Kerala State Information Technology Mission	Conceived the project, Campaign and Overall Coordination
2	Local Self Government Department	Coordination of Local Bodies
3	District panchayats/ Corporations/ Municipalities/ Block Panchayats/ Gram Panchayats	Funding, Project Implementation and Monitoring
4	Town and Country Planning Department	Spatial Mapping for the Selection of Locations of Akshaya Centres
5	Public Relations Department	Public and Media Relations
6	Centre for Development of Imaging Technology	Course Ware Development
7	STED Project	Entrepreneurs Training and Support
8	Information Kerala Mission	Local Body Co-ordination, Seminars and Social Animator support
9	CDAC	Connectivity Implementation and Coordination

Phase I- During this phase, the centres were supposed to focus only on e-literacy and the entrepreneurs were engaged in door-to-door awareness campaigns and activities. They were entitled to State financial support in the form of loans to pay rent and purchase computer peripherals. E-literacy training for the people was also State – subsidised. The village and State Governments paid e-centre franchisees Rs 120 per head towards training, while each recipient of the training paid only Rs 20. It is estimated that 85 per cent of the cost of the training incurred by the entrepreneurs was reimbursed by the State. The subsidy was expected to help in raising mass awareness about the Info-kiosk services throughout the district, while simultaneously ensuring their viability and sustainability.

Phase II- After the first phase of the project, each Centre was supposed to use sound business strategies to achieve financial sustainability. The services at these centres were to include the provision of Government services such as birth and death certificates, electronic payment of bills, education training and access to information on health, agriculture and legal issues.

However, consumers' perception of the State and entrepreneurs, entrepreneurs' perception of the state, and the ways in which each group defines and prioritises social development and financial sustainability complicated the implementation of the Akshaya project.

4.1.8 Phased Implementation

The project started on November 18, 2002. It was to be implemented in two phases: e-Literacy Phase (Phase I) and Product Launch Phase (Phase II).

Akshaya Phase I: Malappuram district in northern Kerala was chosen for the pilot implementation. It is the most populous and only Muslim-majority district in Kerala. The Kerala Government launched the Akshaya project in November 2002. Entrepreneurs were selected by February 2003 and given training. The project went on stream in May 2003. Each Akshaya Centre was allotted on an average 1,000 households- around 630 e- Centres were set up Thus, each Akshaya Centre had an exclusive geographical area for its operation. The Centres trained at least one member from each of the families allotted to them. A remuneration of Rs 140 was paid per trainee. The trainee, in turn, paid Rs 20 to the Akshaya Centre. The rest of the money (Rs 120) came from the gram panchayat, block panchayat and district panchayat.

The e-literacy Programme imparts basic keyboard and mouse skills in 15 hours of training. In addition, it

introduced Windows and word processing to the trainees. About 90 per cent of the families of the district were reached through a network of 630 e- Centres. E-literacy was done through tutor neutral CD-ROM-based content consisting of 10 training modules of 90-minutes each and was distributed to all e-Centres. The modules were played, like videos on PCs, with people watching the process and taking a multiple-choice test at the end of the last module. Every user was assumed to pass the test, and all who went through the process was certified "e-Literate".

Thus e-literacy for the entire district was completed by February 2004–each household in the district had at least one member familiar with basic computing concepts.

Akshaya Phase II: In the second phase, Akshaya Centres were to be used for delivering various e-Governance services to the public, which included Pubic Grievances Redressal Systems, Decision Support Systems, online processing of applications, information dissemination services, digital extension of various campaign/awareness programmes, tele-medicine, agriculture intervention, etc. Many initiatives like e-Parathi (District Collector's Public Grievance Redressal Mechanism), e-Krishi, etc. have started.

In this phase of the project, the State created a wireless infrastructure and the entrepreneurs and the state shared the initial cost of setting up the wireless infrastructure in a 50:50 ratio. In addition, each entrepreneur was to pay a monthly rent of around Rs 1,000 for using the infrastructure. The majority of Akshaya entrepreneurs were apprehensive of the project's future. The business model of the first phase was simple and assured revenue generation. In the second phase, however, they needed to introduce services based on market requirements. Hence, high levels of risk were involved in the second phase and entrepreneurs had already made some investment on which they were hoping to get returns.

Rollout Phase: The project piloted in the district of Malappuram is being replicated all over the State in phases making Kerala the foremost knowledge society in the country and a model of development. The roll out period in the remaining 13 districts of the State officially began from July 2005.

4.1.9 Sustainability Issues

It is essential to assess the sustainability of Akshaya centres and the potential of second phase revenue models as
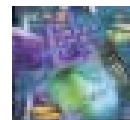
Akshaya is being rolled out State-wide. When Akshaya was first implemented in Malappuram district, 630 centres were established by individual entrepreneurs to serve 1,000 households each. At present, 435 centres remain of which 430 have connectivity. But debt burdens caused by financial losses forced them to shut shop.

In the first phase of the Akshaya project in Malappuram district, the entrepreneurs were reasonably successful because of the certainty of business and State support which flowed through the local bodies. Nevertheless, the problems of the Akshaya project had started in the first stage itself. Some of the practical hurdles that sprang up in the pilot phase were:

- There were many instances of unnecessary expenditure that entrepreneurs were forced to incur. For instance, the "Handbook for Learners" which had a marked price of Rs 10 each sold less than 100 copies at some centres. But each of the centre owners had spent Rs 8,000 or more on stocking this book. They were promised that unsold books would be taken back, but they are yet to be refunded

- Every centre was supposed to train at least 1,000 people in three months, thereby ensuring an income of Rs 1.20 lakh but it took nearly six months. The delay in completing the training was reflected in disbursement of funds as well. This delay itself inflicted a heavy loss by way of extra interest, electricity bills, rent for the building, etc. on the proprietors of the Akshaya centres.

Phase II- The second phase of the Akshaya project envisaged the launching of various IT-related services and linking of Governmental services to Akshaya centres. At the outset it was realised that the second phase was going to be very risky as the entrepreneurs had to act independently and follow the market. And the fear turned into reality. The pioneering vision behind the internationally acclaimed project soon fell apart because of divergent voices about its financial viability. Questions arose about its future as well. It would be pertinent to explore the challenges arising from this simultaneous pursuit of social and financial goals and suggest corrective measures to make this ambitious project a success.

There is tension inherent between the goals of social development and financial sustainability at the macro (within the State and political parties) and micro levels

(with entrepreneurs and potential consumers) making it difficult to run a financially solvent ICT which that also meets development goals. As it turned out, the implementation of ICTs for development is not simply a technical process of delivering services to the poor, but a highly political process involving tradeoffs and prioritisation of particular goals to attain sustainability.

4.1.10 Benefits

Akshaya is a social and economic catalyst focusing on the various facets of e-Learning, e-Transaction, e-Governance, Information and Communication. Since the locations of these tele-centres is strategically planned and spatially distributed to cater to the people in even the remotest part of the district, they form a powerful network to bring the benefits of all e-Governance initiatives to the common man. The telecenters have the potential to provide G2C, G2G, C2C, B2B and G2B services and can act as decentralised information access hubs and service delivery points.

Benefits in Malappuram district

Trained more than 5.9 lakh people, more than 50 per cent of the trainees are women.

Online certification: e-Literacy-5.9 lakh studied, 25,378 certified

> e-Vidya- 46,750 studied, 6500 certified
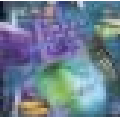> Nearly 3000 direct employment opportunities created.

Computerisation in primary co-operative banks and societies, small shops and business establishments and schools and educational institutions.

Various e-Governance services like e-Payment (bill payment), e-Krishi (agriculture being linked to market), e-Parthi (online bill payment) etc. have enabled the Government to offer its services more effectively.

Even though over 25 per cent of Akshaya centres have closed down, it is inappropriate to term the project a failure. The very fact that 450 centres are functioning across Malappuram, braving the initial unforeseen hiccups, is a tribute to the project. But the State Government, now replicating the project in other districts, should not overlook the problems that these centres encountered. And offering a helping hand to those in trouble, rather than just washing its hands off, would send a positive message to potential Akshaya entrepreneurs in other parts of the State.

4.1.11Analytic Synopsis

Approach	Indicators
Sen's Approach	**Female participation**- E-literacy had some interesting gender-related outcomes. About 65% of the people of the trainees are women, whereas only 11.7% of the entrepreneurs are women. This high rate of female participation in the computer literacy is very encouraging considering the greater net benefit coming from educating women. **Increase in productivity**- This results from the following sources: • By empowering individuals and communities through enhanced access to information, education and communication facilities • By modernising and upgrading skill sets of ordinary citizens and thereby increasing their employability • By reduction in average service processing time in the discharge of government services • By generating content in local language and making it relevant & useful to the common man **Extent of coverage**- The outcome of increased PC and ICT applications penetration has been achieved owing to the following initiatives: By creating awareness of ICT tools & usage. Each e-kendra has been set up within 2-3 kilometres of every household to make available the power of networking and connectivity to common man. Generation of service delivery points even in the remotest areas

Brown's Approach	**Increase in income**- This has resulted from various channels: • By attaining service efficiency and economy in Government services- for instance, e-payment of utility bills (telephone and electricity) through Akshaya centres has resulted in total bill collection of worth Rs 3 crore. • By generating direct investment of over Rs 500 crore in 3 years • By generating over 50,000 employment opportunities in 3 years. **Improvement in delivery mechanism**- Akshaya being a one-stop information centre, has proved to be a social and economic catalyst focusing on the various facets of e-Learning, e-Transaction, e-Governance, Information and Communication. Akshaya has also enabled the integration of communities through the creation of e-networks and development of the core sectors like Agriculture, Health, Education, Industry and Resources. It has also enabled Government departments to identify the services that are routed through its network and helped them to structure the programmes.
Sustainability/ Scalability/ Profitability	Achievement of the twin goals of social development and financial viability has proved to be a major hurdle for the Akshaya centres to become sustainable in the long run. A fresh new look on the situation is necessary to enable this ambitious project to integrate the twin goals-for instance, proper selection of entrepreneurs. Scaling up of the Akshaya centres will yield real benefits only when the sustainability issue of these centres are adequately addressed. As borne out by the pilot experiment, about 3/4ths can be called as financial success while one-fourth of them had shut down their centres.

Case Study 2:

KAVERI
An Initiative of the Karnataka Government

Initially meant only for property registration, KAVERI's scope has been extended to the registration of firms and societies and marriages. Attempts are also being made to successfully link it with the Bhoomi Project so that land records can also be accessed from the SRO (Sub- registrars Office) instead of having to go to taluk offices. The KAVERI project of Karnataka won the best e-Governance Project award for the year 2004 at the 40th annual conference of the Computer Society of India (CSI). Similar initiatives that have been successfully implemented in other states are CARD in Andhra Pradesh, HIMRIS in Himachal Pradesh, and PEARL in Kerala.

4.2.1 Background

The Department of Registration and Stamps in Karnataka had made attempts earlier towards computerisation of their processes. However, there were certain drawbacks in the earlier computerisation process, which led to only partial success. Despite computerisation, the process of registration was time consuming, documents were not delivered on the same day and an integrated software could not be developed. Also, it required huge investment from the Government. Besides, all 201 sub-registries could not be computerised at the same time. According to a moderate estimate, it would have taken a minimum of 10 to 15 years depending on the availability of funds.

Consequent to this assessment, it was proposed to follow the Maharashtra model of e-Governance with the technical help of the Pune-based CDAC to automate the whole registration process on the principle of public-private participation on a Build-Operate-Transfer (BOT) basis for speedy delivery of registered documents to the citizens of Karnataka. The computerisation of the department was important because the Department of Stamps and Registration is the third highest revenue generating department for the Government of Karnataka, with a revenue target of Rs 1,360 crore for 2003-2004. The department has a staff strength of only around 1,000 at 202 offices across the State and spends less than 1.5 per cent of its revenue on itself.

4.2.2 KAVERI- A Business Process Reengineering Model

KAVERI is an example of the Business Process Reengineering (BPR) model to reorient the Department

of Registration and Stamps towards 100 per cent automation in the registration process, wherein the registered documents would be delivered to applicant within 30 minutes of document submission in contrast to the existing 45-day time lag.

4.2.3 Key Objectives

KAVERI is the first public-private partnership project to be implemented in Karnataka since 2003. The hassle-free procedure seeks to automate and streamline the workflow. The system aims at providing conclusive proof of authenticity of documents, afford publicity to transactions, prevent fraud, provide a facility for ascertaining whether a property has already been transacted, assure security of deeds and titles in case the originals are lost or destroyed. Moreover, the implementation of the project would pave the way for transparency in the department and enable more effective monitoring. It is also expected that this project would enhance revenue collection in the State and would lead to an improved, efficient and user-friendly administration.

As improvement over the Maharashtra model, the following innovations were introduced:

- Automated kiosks for calculation of the guidance values by the public.

- Computerised token system as against the manual system in Maharashtra.

- Data stored on both CDs and microfilm as against the storage of data on CDs alone in Maharashtra.

- Maximum involvement of departmental staff to: a) facilitate smooth transition from the private operator to the Department once the contract period is over,

and, (b) to run the operations under all exigencies.

- Establishment of the Central Record Room at the head office level and Registrars in districts to ease the space availability in the existing offices, thereby leading towards a paperless office which is an ultimate aim of e-Governance.

4.2.4 Business Model /Revenue Model

The proposed strategy for the project is BOT (Build-Operate-Transfer), wherein a private partner is brought in to install, operate and maintain the hardware across all offices and recover his investments from service fees charged to the client in return of the services being provided. The contract period is five years. The roles of both the business partner and the department personnel are clearly spelt out.

Pune-based C-DAC (Centre for Development of Advanced Computing) has provided the software for the project, while CMS Computers Ltd. (AP Government's e-Seva service provider) and Electronics Corporation of India Ltd. (ECIL) are the service providers for hardware, supporting software and maintenance. While the Government has invested around Rs 1.10 crore on the development of software, service providers have invested around Rs 40 crore on hardware, on data entry and furniture for the system. The service providers are responsible for the execution and administration of the project, including manpower deployment, consumables planning, software installation and site preparation. They are allowed to charge Rs 30 per page as 'scanning fee' from the public. They remit Rs 5 to the Government and keep Rs 25.

4.2.5 New Model

The KAVERI applications suite is devoted to take care of the entire registration process, inclusive of necessary report generation and property valuation. The 80-year-old, five-step procedure of registration was left undisturbed for the benefit of end users who have already adopted it.

The general public was unaware of the requirements to be fulfilled before going to the Sub-Registrar. Therefore each Sub-Registrar was provided a kiosk (with touchscreen interface) also called Citizen Care Centre (CCC), which enables even a computer illiterate person

to know the requirements for document registration like market value, stamp duty, registration fee, list of supporting documents, etc. The CCC also posts a list of Frequently Asked Questions (FAQs) and a comprehensive property valuation module that enables the general public to know the cost of their property according to Government rules.

So now, when a person wants to register documents he/she comes to the Sub-Registrar's office and is issued an electronic token, which also assigns a time for the applicant to present documents. The electronic token display system enhances the workflow of the system and the general public is able to attend at a prescribed time instead of waiting for long hours.

The Sub-Registrar then manually scrutinises the submitted documents, decides on their type based on the schedule of the Karnataka Stamp Act and subjects them to PIS-II (Public Information System) scrutiny, which then computerises it. The PIS-II checks the documents based on the information provided and generates a 'Check Slip'. The Check Slip mentions the end result of the documents, whether they would be registered through the system or whether they would be kept pending. Efforts are made to return the documents to the party if they are not complete for registration through the system.

The next step of receipt generation is a simple procedure with the help of a computer, since all fees have already been calculated, details of the presenter given and a number (either pending or normal serial) has been assigned to the document. The system generates a new receipt and all details about receipt are displayed. The operator then enters the details of payment and rechecks the fees calculated with the Sub-Registrar before finalising the receipt. At this stage, the procedure of fee collection is over and operator sets stamp number 2 also called 'Fees Stamp' in consultation with Sub Registrar.

The admission and identification part is processed using Web camera and a finger print scanning device. When all the executors' photographs and thumb impressions are captured, the operator sets Stamp number 3 also called 'Admission stamp' in consultation with the Sub-Registrar. The identification part requires data entry of two witnesses present there. When the identification procedure is over operator puts Stamp number 4 called 'Identification Stamp' in consultation with the sub-Registrar.

After the requirements of the document are completed the Sub-Registrar asks the operator to register the document. The system rechecks all the necessary things before registering the documents and makes all data non-editable. Monthly, quarterly and annual reports are also prepared at the end of month or at specified time as and when required.

4.2.6 Benefits

The kiosks (CCCs) provided adequate information about the documents to be carried to the Sub-Registrar's office and accepts complete documents for presentation, thereby reducing the percentage of pending paper work of department employees. It also reduces the burden on application software in preserving records on hard disk.
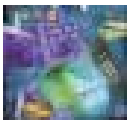
Introduction of the electronic token system assigns a particular time to the applicant to present his documents, thus reducing unnecessary crowd gathering in the Sub-Registrar's office and introduces a systematic manner of document registration.

The use of private participation in Government work has enhanced the productivity of the department. The private partners take care of the maintenance and operate the computers as per the guidance of the system, Sub-Registrar and various rules and regulations laid down by the Department. They also scan the document and verify the correctness of the same with the originals and burn the image data on to the CD. This helps in data transmission to the District Registrar's office as per the schedule.

4.2.7 Conclusion

Initially meant only for property registration, KAVERI's scope has been extended to the registration of firms, societies and marriages. Attempts are also being made to successfully link it with the Bhoomi Project so that land records too could be accessed from the SRO instead of having to go to *taluk* offices. KAVERI won the "Best e-Governance Project" award for 2004 at the 40th annual conference of the Computer Society of India.

4.2.8 Similar Initiatives

Similar projects successfully implemented in other States are:

CARD (Computerisation of the Registration Department)	Andhra Pradesh
HIMRIS (Himachal Registration Information System)	Himachal Pradesh
HALRIS (Integration of property registration and land records administration)	Haryana
PEARL (Package for Effective Administration of Registration Laws)	Kerala
SEVANA (Civil registration system)	Kerala
SARITA	Maharashtra

All these projects mark an end to the centuries - old manual system and empower citizens by giving them access to a prompt and reliable response from the Registration Department.

4.2.9 Analytic synopsis

Approach	Indicators
Sen's Approach	**Increase in productivity** -Efficient administration achieved by drastic reduction in the time taken in transaction processing, hassle-free procedure and reduced corruption. All transactions are predefined and hence all operations at the Sub-Registrar's Office are fully automated. In addition, the quality of the services can be enhanced, as the staff can put in more time on creative jobs leaving the monotonous tasks to the computer, which also ensures accuracy, completeness and better output. **Extent of coverage** - CCCs cater to the full range of people (including illiterates) as computer literacy is not essential to use them.
Brown's Approach	**Increase in income**- Enhanced revenue collection for the State Government coming from the nominal fees charged. **Improvement in delivery mechanism**- Through qualitative as well as quantitative enhancement in the department's work culture and creation of paperless office. The project demystifies the registration process, brings speed, efficiency, consistency and reliability to the transactions. **Risk reduction**-Microfilm ensures secured data storage replacing CDs; prevents loss and damage of documents, eliminates need for perusal of bound volumes and facilitates electronic document retrieval.
Sustainability/ Scalability/ Profitability	Being a PPP model, it is self-sustaining as the private partner has to install, operate, maintain the hardware and provide software support. In addition, the departmental staff is also getting trained by C-DAC so as to make the transfer after the contract period easier. PPP model envisages zero spending for the Government, thereby making it scalable. An important aspect of is the imposition of user charges.
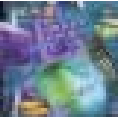
Implementation of e-Procurement Exchange for Government of Andhra Pradesh

- PPP works best
  - If it combines the skill sets of public and private partners - domain expertise of the Government and software and delivery skills set of the private sector.
  - If risk-return option is chosen by the private sector who is willing and in a position to deploy funds vs. Government which desires a risk free option where only its domain expertise is used
- Open platform-level playing field and "fair" competitive platform for the suppliers
- Smart governance - though increased transparency, monitoring and control of the entire procurement process.

4.3.1 Background

The Government of Andhra Pradesh has an estimated aggregate annual expenditure of Rs. 10,000 crore for procurement of works, goods and services. The traditional system of procurement in Government departments was through the manual mode. This suffered from various problems such as inordinate delays (ranging from 4 to 6 months) in tender processing, heavy paper work, multi-level scrutiny which consumes a lot of time, cartel formation by the contractors, etc. The Government departments are very guarded about the processes and generally do not share the information with other entities, thereby resulting in lack of transparency.

4.3.2 New Initiative

In a scenario fraught with such deficiencies, the need was felt for wide ranging reforms in the tendering process. Accordingly, a Cabinet sub-committee was constituted in 2000 to suggest reforms to improve the procurement processes in Government departments using IT tools.

Based on the IT Act 2000 enacted to provide legal recognition to electronic transactions, the Government of Andhra Pradesh (GoAP) embarked on major e-Government initiatives in 2002 to reap the benefits of IT to deliver good governance to society. As part of these initiatives, GoAP desired to set up an e-Procurement Marketplace, where all the Government departments, agencies and local bodies could undertake procurement transactions with their vendors. Government departments, as well as the suppliers, could conduct their procurement related transactions right from the invitation of tenders to the issue of supply orders in an electronic environment facilitated by Internet technology.

4.3.3 Key Objectives of e-Procurement

The key objectives of the e-Procurement solution are enumerated below:

Demand Aggregation – The ability to aggregate Government departments' demand to leverage buying power with the suppliers

Reduced Inventory Costs – Improved planning and management of inventory leading to lower levels of inventory, thereby reducing costs

Internal Arbitrage – Ensuring consistency in goods and services costs at the best price across all departments at the item level

Consistent and Sustainable Vendor Development – Enabling pre-qualified vendors the opportunity to access other Government departments

Transactional Effectiveness – Eliminating or automating non-value adding steps within the procurement to enable efficient and effective processes

Reduction in Total Cost of Ownership – Understanding the supply chain and life cycle costs in procurement to establish value adding supply relationships leading to reduced cost of doing business for both Government and industry

Effective Tender processing – Use of different types of e-Auctions to get better deals

Open Platform – Level playing field and "fair" competitive platform for the suppliers

Smart governance - Increased transparency, monitoring and control of procurement process

4.3.4 Core functionality of the e-Procurement Marketplace

The Marketplace includes the following core functionality to take advantage of various best practices available in the private sector in order to derive the objectives of the initiative.

- Electronic tendering
- Contract management
- Rate contract based procurement
- Dynamic pricing engine (auction, reverse auctions)
- Search Engines, Announcements and Business News

4.3.5 Business Model

The Government has the domain expertise but does not have the best expertise in software/ Information Technology, whereas the private sector has technology and skill set to convert the manual processes into computerised processes. In view of the technology intensive nature of the project, the PPP model was selected. In this model, the expenditure on hardware and software as well as its customisation is borne upfront by the private partner without any investment by the Government and all the risks related to changes in technologies, volumes of business are also borne by the private partner. The private partner recovers the investments by way of transaction fees paid by the user departments for the transactions carried out on the platform. *Commerce One*, the Nasdaq-listed Internet solutions firm, partnered with GoAP to develop e-Procurement as a joint venture where all the investments were from the former.

4.3.6 Revenue Model

The GoAP has chosen a revenue model for the pilot, wherein the Government departments would pay a fixed hosting fee and transaction fee at a suitable percentage charge on the transaction value payable to the private partner. However, in the roll out phase, a new revenue model is introduced, where every participating bidder is required to pay a transaction fee proportionate to the bid

value, with a maximum cap (for tenders with a value of less than Rs 50 crore, the fee payable is 0.04 per cent of the estimated contract value or Rs 10, 000, whichever is less — for other tenders, it would be a lump sum of Rs. 25,000). The transaction fee payable by a bidder is so fixed that it is less than the tender fee charged from the bidders in the manual tender system. The revised revenue model has encouraged the departments and PSUs to participate in the portal as the departments are not required to pay any charges to the private partner.
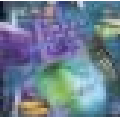
4.3.7 Phased Implementation

Period / duration of the Project

- RFP issued in March 2002
- Agreement for pilot project signed on June 2002 between GoAP and the Private Partner. Pilot project schedule was for nine months; first three months for implementation and the latter six months for the Pilot operations.
- After successful implementation of the Pilot, the project entered into the three-year Rollout stage. The roll out agreement with the present service provider is valid up to March 2007.

Phase 1: Pilot- A pilot in four selected departments was launched in January 2003 to test the concept in varied departments representing the whole spectrum of Government procurements and then roll it out to other departments. The departments selected for the pilot were the A.P. Government's Works Department, A.P. Technological Services dealing in hardware and software, A.P. State Road Transport Corporation dealing in auto spares, fuels, etc. and A.P. Health and Medical Infrastructure Corporation dealing in drugs, medical equipment, etc.

Phase 2: Roll – Out - After the successful completion of the pilot phase, e-Procurement was rolled out on July 2004 to other departments to cover all procurements costing above Rs 10 lakh. The roll out was phased over a period of three years to include all departments at a mutually agreed schedule. E-procurement is presently implemented in nine departments, 11 Public Sector Undertakings (PSUs), 51 Municipalities and four autonomous institutions. Till February 2006, 12,003 tenders aggregating Rs 33,400 crore have been processed on this platform, making it the world's largest Government-owned portal.

Phase 3: Operations and On – Going Maintenance- In this phase, new functions will be introduced. Value added services such as electronic payment, credit rating, logistics and P-Cards for bidder empowerment are also envisaged and would formulate separate initiatives.

4.3.8 Steps to facilitate Speedy Adoption

Change Management with stakeholders was very critical to the success of the e-Procurement project. The users were slow to adapt to the change during the initial period and the project gained momentum up once the users were comfortable with the new system. Various steps taken to rope in the buy-in of the stakeholders are enumerated below.

High power Steering Committee: Since the mandate was to implement the initiative across several departments, the major challenge was to bring all the participating departments to a common platform and agree to a uniform procedure of procurement. To ensure buy-in of the top management and to resolve procedural issues, a Steering Committee chaired by the Chief Secretary of GoAP, with Secretaries and heads of the five identified departments, IT&C (Information Technology and Communication) department and C1 India (private partner) as members, was constituted. The Steering Committee met once a month during the pilot stage to dwell on all issues in implementation of the project giving required orders and directions so that impediments in adoption of e-Procurement are removed.

Project Champions: Project owners (or project managers) were identified from within each participating department and core groups were formed in the user departments to chalk out effective strategies for facilitating speedier implementation within the departments.

Key officials from the departments and PSUs were trained as Chief Information Officers (CIO) by IIM – Ahmedabad. They function as a bridge between the domain experts and the technology experts i.e., vendors. The CIOs assist the Steering Committee in bringing in necessary legislative and regulatory changes, supplier adoption and streamlining the Government procurement process. The CIOs act as project champions within their department to conduct the Change Management Process and to drive the project.

Involvement of stakeholders: Detailed 'As-Is' and 'To-Be' process studies were carried out involving the important stakeholders, i.e., the departmental users and the suppliers/contractors. Feedback was taken from the Contractors Association of Andhra Pradesh on the processes. The gaps thrown by the 'To-Be' process study were filled by appropriate customisations and the agreed upon process by the stakeholders were mapped on the software.

Training and Workshops: To effectively communicate the objectives and benefits of the project extensive concept selling and training workshops were conducted for both the departmental users and the suppliers.

Helpdesk: A call centre type helpdesk was established to record and address all the issues and concerns of the participants.

4.3.9 Business Process Reengineering

Major re-engineering had to be carried out to re-design the bid submission forms to enable the bidder to submit the data online against the set qualification criteria so as to allow the software to do technical and commercial evaluation of the bids. As soon as the bids are opened online on a stipulated date, the system assesses the responsiveness of bids submitted by the bidders by comparing the qualification data submitted by the bidder in the online form vis-à-vis the set qualification criteria for the tender and provides the evaluator a system generated bid evaluation statement of all participating bidders. The auto bid evaluation has streamlined the bid evaluation process, made it speedier and simple apart from making it less subjective.

4.3.10 Outcome of the Initiative

The e-Procurement project has achieved most of the objectives that it was set-up to achieve:

- Transaction volume of Rs 33,400 crore in three years from over 12,000 tenders on the platform

- Reduction in average tender processing time from an average of six months to 36 days

- Increase in average number of bids received per tender from 3.4 to 4, reflecting an increase in participation from supplier community

- Elimination of *cartelisation* as reflected by a sharp increase in supplier participation in some of the cartelised areas of the State

- Empowerment of small and medium suppliers as they need not visit the department to purchase the tender documents or to submit their bids

- Increased transparency as bids are opened online and bid opening is visible to all the suppliers online

- The system has reduced subjectivity in tender evaluation by building smart forms that do preliminary technical evaluation of bids

- Instant online MIS is available on all the tenders, supplier participation and the results to all the departments and the Government.

- Significant cost savings - above Rs 2,000 crore due to discount quotes

- Elimination of paperwork as the bids are submitted online and the files or documents move in electronic form for required authorisation.

- Empowerment of bidders, streamlining of processes and a strong Management Information System are the other commendable achievements.

4.3.11 Benefits of the e-Procurement System

Transparency: In a e-Procurement system, the tender documents are hosted on the web site for free downloading from the day of publication of tenders; this has eliminated the bidders' dependence on department officials for issue of tender documents. Availability of information online to the bidders has eliminated the human interface with department officials in pre and post tendering activities. This has in fact helped reduce subjectivity and corruption. Information on the transactions, the status of evaluation and award of contracts is automatically made available to the bidders on the portal. Transparency in the procurement processes has improved the Government's image and reduced instances of adverse media reports.
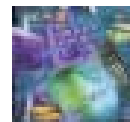
Shortened tender cycle time: Automated work flows and simplification of processes have improved the internal efficiency of procurement departments and significantly reduced the tender lead times from 120 days in the conventional mode to 36 days in the e-Procurement mode. Reduction of lead time has contributed to early completion of projects and reduction of cost overheads to departments as well as to the suppliers.

Cost Saving: The departments reaped significant cost savings — Rs 255 crore (20 per cent reduction in cost) for the procurement transactions done through the exchange during 2003-04 and around Rs 2,000 crore in 2004-05 and 2005-06 due to the competitive environment created by the e-Procurement platform. While the off-line procurement carried out for civil engineering works in World Bank- assisted projects in the State have resulted in receiving tenders which are 10-15 per cent higher than the estimated cost, the online procurement for similar works in other departments done over the e-Procurement platform has resulted in receiving tenders which are 7-10 per cent less than the estimated value of the work, thus saving tax payers' money.

The Government departments have also saved significant amounts (Rs. 3 crore) on advertisement costs for column-centimetres in the media as e-Procurement tender notices are substantially shorter and contain only basic information on the name of works, estimated costs and the URL of e-Procurement site for further details.

Empowerment of Bidders: Earlier, the suppliers had to physically scan several newspapers to keep track of tenders called by the various departments. The e-Procurement exchange makes available all the procurement requests emanating from various departments available to the suppliers at one source free of cost. Due to the project, suppliers are able to participate effortlessly and remotely in the Government's bids, round the clock, enabling them to apply for tenders of a large number of departments at greatly reduced costs of transaction. All the transactions are performed in a secure environment and every bidder is required to use his digital signature to participate in the bidding process on the e-Procurement platform. As of now, 5,929 digital certificates have been issued, which is the highest for any State Government's e-Governance portal.

Elimination of Contractor cartels: The electronic tendering process has been made completely anonymous and only after the opening of bids, does anyone come to know the names of the participating bidders. This has prevented the suppliers from forming cartels and has facilitated wider participation from genuine suppliers. Elimination of supplier syndicates/ cartels ensured a level playing field to suppliers. The supplier is benefited by way of more opportunities and Government departments get the best value for taxpayers' money due to the competitive environment created by e-Procurement.

Streamlining of processes: At the outset, an effort was made to standardise the procurement processes, including forms, practised by various departments, especially for the Works departments. Today, all of them follow common tendering processes and forms for Works tenders. Even these processes are being re-engineered to further improve the efficiency and curtail subjectivity in tender evaluation by the departments. A similar exercise is underway for products as well.

Management information system: The e-Procurement platform has a very strong Management Information System (MIS) component. This has improved the availability of information to the departments for monitoring and reviewing the public procurements. Earlier, collection of information from various procurement entities spread across the State was time consuming and its integrity was doubtful. Now the e-Procurement MIS provides the departments real time quality information. Senior bureaucrats in Government and public representatives have access to the information from this portal at the click of a mouse.

4.3.12 Recognition of the Project

The e-Procurement project won "The Gold award" in the e-Governance initiative category for 2003 from the Ministry of Administrative Reforms, Government of India.

E-Procurement project implemented by the GoAP has won PC QUEST's "Best IT Implementation Award" for 2005 under the "Maximum Social Impact" category in a nation-wide competition.
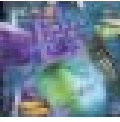
4.3.13 Conclusion

The initiative has been institutionalised. The stakeholders have witnessed the benefits. There are no instances of any department reverting to conventional paper bids. The initiative sustains without Government budgetary support, as it is implemented on the Application Service Provider model with service charges being paid by the participating bidders. The Government has created an e-Procurement fund to sustain initiatives. By charging successful bidders on the e-Procurement platform the departments can meet their requirements of hardware and consumables for this e-Procurement fund.

4.3.14 Analytic Synopsis

Approach	Indicators
Sen's Approach	**Increase in productivity**- This results primarily through considerable reduction in total time consumed right from the invitation of tenders to the final stage of issue of supply orders. It is a commendable achievement, since delay engenders malpractice. **Improvement in transparency**- Elimination of human interface with departmental officials in pre and post tendering activities has resulted in reduction in subjectivity and corruption. **Shortened tender cycle time**- Automated work flows, simplification of processes have improved the internal efficiency of procurement departments and significantly reduced the tender lead times from 120 days in the conventional mode to 36 days in the procurement mode. Reduction of lead-time has contributed to early completion of projects and reduction of cost overheads to departments as well as to suppliers. **Elimination of contractor cartels**- Anonymity in the electronic tendering process till the opening of bids has prevented the suppliers from forming cartel and facilitated wider participation from genuine suppliers. Elimination of supplier syndicates /cartels ensured a level playing field to the suppliers and this way the genuine supplier is benefited by way of more opportunities and the Government departments have got the best value for the taxpayers' money due to competitive environment created by eProcurement. **Paperless Office**- By making the complete procurement process paperless, this new system ensures that at any point in time, authorised personnel can check the status of a particular transaction. **Extent of coverage**- Greater involvement of the supplier community reflected in the increase in the average number of bids received.

	In terms of social impact, it reduces cartel formations among contractors and suppliers since all the bidding is done online through the portal. It has actually increased the participation from the supplier community since anybody can bid for a tender. This helps empower even the small and medium-sized suppliers.
Brown's Approach	**Increase in income**- The departments reaped significant cost savings of Rs 255 crore (20% reduction in cost) for the procurement transactions done through the exchange during 2003-04 and around Rs 2,000 crore in 2004-05 and 2005-06 due to the competitive environment created by the e-Procurement platform. Advertisement costs also witnessed a significant cut as e-Procurement tender notices are substantially shorter than the conventional ones and contain only basic information on the name of the work, estimated costs and the URL of e-Procurement site for further details. Under e-Procurement, tender fees payable by bidders are lower. **Improvement in delivery mechanism**- Qualitative enhancement results through simplification of procedures, fair competition, quick delivery and greater transparency in the procurement processes, which, in turn, have improved the Government's image by reducing adverse media reports . Now the e-Procurement Management Information System (MIS) provides the departments real time quality information on the procurements. This has tremendously helped the Government departments for monitoring and reviewing public procurements. Earlier, the suppliers had to physically scan several newspapers to keep track of tenders called by various departments. The e-Procurement exchange makes available all the procurement requests emanating from various departments available to the suppliers at one source free of cost. All the transactions are performed in a secure environment.
Sustainability/ Scalability/ Profitability	**Sustainability:** The project has been implemented using the public-private-partnership model (PPP). In this model, the Government neither invested in the hardware, software and customisation of the project, nor did it have the responsibility for maintenance. It is all borne by the service provider. The IT player recovers the investment through the transaction fee paid by the user departments for the transactions carried out on the platform. **Scalability:** Realising the funds constraint of GoAP, the PPP model, for obvious reasons, provides the best answer for scalability of the model. **Profitable:** Earlier, the transaction fee charged was 0.24 per cent of the estimated contract value. Now it has been lowered to 0.04 per cent of the tender fee with slabs to have a maximum cap. This suggests extreme profitability of the project.

Case Study 4:

Nagarpalika

An initiative of the Gujarat Government

- Scalable efficient delivery of public services without the constraint of labour availability for increased scope of services.
- Model replicable across the state as the unit of analysis is municipality, a self contained governing unit.

4.4.1 Background

Vejalpur is one of the urban conglomerates outside the limits of Ahmedabad Municipal Corporation (AMC), but falls within the jurisdiction of the Ahmedabad Urban Development Authority (AUDA) . Currently a "B" class municipality, it is shortly to be designated as "A" class, based on the 2001 Census. General administration, certification/ licensing, taxation, accounts, solid waste management (SWM) and complaint redressal for water supply, street lighting and other services were carried out manually in the municipality. Shortage of staff was an excuse for tardy performance and there would always be a demand for additional recruitment. Citizens suffered from the usual delays and harassment associated with a less responsive and uncooperative municipality. Property tax collection suffered and there was lack of transparency in the system.

4.4.2 The e-Nagarpalika Initiative

In view of the aforementioned deficiencies of the manual system, it was decided to take the assistance of ICT. The e-Nagarpalika was established at the Municipality of Vejalpur in 2003 with an agenda to give citizens an effective delivery mechanism.

4.4.3 Key Objective
" One Spot – Non Stop Convenience at City Civic Centre and Internet"

The major objective of total e-Governance through city civic centres is to treat all citizens like customers of a large corporation. The duties enumerated in the "Citizens' Charter" have been brought under the electronic process and made user-friendly and interactive. The other objective is to establish Citizen Convenience Centres where the citizens can easily access information on services, file complaints and make tax and utility payments.

4.4.4 Services Offered

The Internet provides the most cost-effective method of reaching people. The web not only facilitates speedy information dissemination, but also helps citizens access various services that hitherto require their physical presence. In order to realise the ultimate goals of e-Governance, www.vejalpurnagarpalika.com was launched under this project. While developing the web site, the Government clarified that it would not merely be an information driven web site but also utility driven, so as to act as a window to gain access to the municipality Intranet and local area networks. The content of the web site is also available in the local language.

The various activities and data/information that have been computerised are:

Online Registration and Issuance of Birth and Death Certificates since 1994: The municipality web site provides access to all hospitals to register births and deaths online. The entire operation of collecting the information from the hospitals and maintaining it in the muster records used to be a time consuming affair. Manual record keeping made it impossible to search and deliver the certificates rapidly.

On-line Issuance of Licenses for Shops and Establishments: It was impossible to obtain the licenses for shops and establishments without involving a middleman. Now, the City Civics Center issues licenses instantly. Renewals are also carried out across the counter. The system also enables the municipality to collect the fees for sign boards and hoardings, which could not be collected manually earlier.

On-line payments of all municipal dues: The simplified tax calculation system of more than 40,000 properties has been put on the web for the public to access the

property tax calculation method of any property in the city. Easy access to local banks could reduce tax evasion and increase the collection phenomenally. Therefore, local banks have been connected with the municipality's Intranet to collect taxes. Credit and debit cards further facilitate the process. Manual calculation has been replaced by automation to assess real time demand and collection. This system has increased the efficiency manifold.

On-line monitoring for SWM (Solid Waste Management) Transportation: Every time a container in a ward is lifted for transporting and dumping at the landfill, the information, along with Ward ID, Tractor ID, Driver ID and Container ID, are fed into the computer. This results in effective control on SWM transportation activities and at the same time creates MIS that helps in optimisation of transportation costs.

On-line Complaints Redressal: All 12 wards are connected through the Internet to receive and redress complaints on civic amenities or matters related to taxes. Online complaints filed by citizens are directly received by the chief officer and automatically directed to the concerned officer for prompt action. The monitoring mechanism enables every office to identify problems and coordinate laterally or vertically via Intranet to ensure redress within 24 hours.

Online Information on Infrastructure Projects and Tenders: Online information on infrastructure projects and related tenders in process could attract many well-qualified contractors from all over the country. The bank-to-bank payment procedure has reduced delays and increased the confidence of the contractors. All the pay-ins of the municipality as well as payouts are handled through two banks. Vejalpur has transformed the banks into the municipality's back end. This has fine-tuned the financial management of the municipality so as to upgrade itself to one of the best and professionally managed urban local bodies.

4.4.5 Business Model

The project started in June 2003 and was commissioned in October of that year. It is owned and operated by the State Government. The capacity and skill building exercises were taken up with the help of the vendor, Microsoft Systems, who was involved in software design and development. The municipal employees were trained

by the vendor on software applications. The work of keying in the entries of previous years on births, deaths, taxes, etc. was done by operators supplied by the vendor, while the work process was handled by the Municipality's employees. The general administration staff are performing well with the same strength as before. No fresh recruitment, even to fill vacancies created by retirement, was done. The employees were encouraged to implement the double entry accrual-based accounting system.
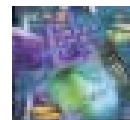
4.4.6 Revenue Model

The direct source of revenue for the municipality is the fee of Rs. 10 — 20 charged per copy or certificate issued. The indirect revenue is in the form of improved finances, i.e., tax collection, which jumped from 15 per cent to 65 per cent of the existing demand. For example, in Vejalpur, the municipal tax collection in 2000-2003 was below Rs 1 crore, whereas after introduction of e-Nagarpalika, in 2003-04 alone, the collection increased to nearly Rs 5 crore. All other municipalities have also achieved similar improvements. Other sources of revenue – fees for certification, application and licensing — were also maximised. Also, the establishment cost was reduced in municipalities, which resulted in income surplus over expenditure.

4.4.7 Viability and Sustainability

The project was able to recover the initial cost of approximately Rs 20 lakh. With the introduction of ICT, revenue shot up to Rs 3 crore from an average of Rs 85 lakh in the preceding three years. In fact, Rs 3 crore has become the annual target for the past two years. As solid waste, electricity and other complaints are monitored, it leads to considerable cost savings. Ward-level revenue generation is monitored and development cost is proportionate to the revenue collected. Though the project was initially meant to be non-profitable, it turned out differently. The Nagarpalika now has a very small staff of only 17 employees. Civic Centre staff is from Microtech Systems. Due to all these measures, the Nagarpalika has improved its finances:

- Tax collection jumped from 15 per cent to 65 per cent of the existing target.
- Establishment cost reduced to 8 per cent of the budget - a record
- Income surplus over expenditure achieved

- Assurance of reliability of services achieved

- Earlier perception of shortage of staff no more valid; no fresh recruitment necessary even as members retire; staff costs to be reduced over time

- More developmental work taken up; four major services privatised

4.4.8 Phased Implementation

The project was launched in October 2003 in the Vejalpur Municipality. As per the current status, the pilot e-Nagarpalika project launched in the Vejalpur Municipality has been replicated in 116 municipalities of Gujarat State.

4.4.9 Current Status

The table below provides the present situation vis-à-vis the situation before the implementation of the system:

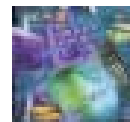| Then (Before Oct. 20th 2003)	Now
Manual, pre-computer	Online
Dependency on the staff at each level	Independent
Discretionary powers, execution	Transparent
Decentralised Database	Centralised Database
People had to go to the municipality for payment or lodging complaints	Anywhere in Vejalpur Civic Centre, banks, Internet & credit card
Manual Interest Calculation	Real time interest calculation
Information available on paper	Information easily available
Information within hold of selected few E.g. Property Tax, file tracking	Transparent for the citizen & accessible to all
MIS used to take long, dependant on EDP	MIS online
Different departments & places E.g. Property tax, vehicle tax trade, LIC	All at City Civic Center (Jan Seva Kendras)
Cluttered restricted atmosphere for Citizen/ Employees	User friendly vibrant atmosphere
Lack of connectivity led to inadequate use of resources, e.g. stand alone computers, inventory	Optimum use of resources
No accountability, Property Name change takes 5 years	Performance monitored online
Manual File movement, Lost Files	Electronic file movement
Data Updation only through EDP, dependency	EDP department now has to only monitor
System forced citizen to be dishonest	Trust of the Citizen
Need to be told for every action, billing, follow-up	Computer does the task, backup, billing calculation

4.4.10 Conclusion

The results achieved have been as follows:

- e-Governance model comparable to any metro city in India

- Administration transformed to being people–centric

- Reduction in delays and increased promptness in delivery of services

- On-line monitoring and control encouraged municipality to go for privatisation of four major services

- On line office administration, monitoring/control mechanisms and service provision introduced; led to time management and paperless office administration

- Three civil centres established for time-bound complaint redressal, service provision and accessibility at fingertips

- e-Governance contributed to the municipality being the first ULB to achieve 100 per cent compliance with the first four steps of MSW Rules 2000

- General administration staff performed well with the same strength as before – no fresh recruitment even against retirement

- Firm step towards implementation of double entry, accrual based accounting system – in progress

- Citizens proud of Vejalpur municipality in terms of transparency, accountability, service delivery and above all, exemplary dedication and team work of the elected wing.

4.4.11 Analytic Synopsis

Approach	Indicators
Sen's Approach	**Increase in productivity:** Increase in labour productivity is evident from the fact that no fresh recruitment is made, the need for which was felt earlier. Existing staff strength proved sufficient for the work. **Promptness in the delivery of services:** By providing access to all hospitals to register births and deaths online, the municipality web site not only contributes to time saving by doing away with the practice of maintaining master records manually, but also make the delivery of certificates faster. Issue and renewals of licenses are done instantly by CCCs leaving no scope for malpractice and intermediaries
Brown's Approach	**Increase in income:** This economic benefit results from the fact that the local banks are connected to the municipality's Intranet to collect taxes. This has eased the access; thereby resulting in reduced tax evasion and increased tax revenue collection. Non-tax revenue (certification fees, licensing fees etc.) has also improved. **Improvement in delivery mechanism:** This information-cum-utility driven web site has led to service efficiency as well as service economy. This not only contributes to citizen satisfaction but also improves the public image of municipality. To substantiate, public access to simplified tax calculation system has eliminated the doubt that others have been assessed with lesser tax and reposed their faith in the system.
Sustainability/ Scalability/ Profitability	The project has proved to be sustainable as it has been able to recover its initial costs very comfortably and in some cases by a great margin. The model can be readily scaled up. The model has proved to be a profitable proposition, though it was not meant to be.

E-Agricultural Marketing ("EKVI")

An Initiative of the Madhya Pradesh Government

Competition matters: With e-Choupal's foray and success, the 'Mandis' were getting marginalised. In an attempt to retain the market share of mandis, the Government launched EKVI, using the same ICT and in the process helped the farmer, a key stakeholder.

4.5.1 Background

Mandis are central to the functioning of the marketing channels for agricultural products. They act as a point of contact between farmers and traders. Buying and selling transactions are conducted by commission agents and are based solely on verbal agreements and mutual understanding. The *mandis,* unfortunately, have not worked as optimal procurement channels since the market is created, manipulated and managed by agents. To overcome these deficiencies, Internet - connected kiosks, known as e-Choupals, have been set up by ITC where farmers are provided with the latest weather reports and apprised of local and international prices and best practices in farming. They also serve as procurement and purchase points, allowing farmers to not just sell their produce but also to buy agricultural inputs and consumer goods. This initiative in Madhya Pradesh became an ideal vehicle to communicate directly with the farmers and thereby bypass the inefficiencies arising out of agents' intermediation and collusion. It provided farmers with better information regarding prices and reduced their transaction cost (reduction in travel cost plus losses incurred due to use of the Mandi's manual scales). Thus, e-Choupal not only provided an alternative marketing channel but was also a competition to the existing mandis. Thus, to prevent mandis from becoming redundant, their computerisation was sought by the Government of Madhya Pradesh.

EKVI (e-Krishi Vipanan) is the e-Agriculture Marketing project taken up by the Government of Madhya Pradesh as part of its e-Governance initiative to facilitate the farmers of the State in taking informed decisions for selling their produce. Madhya Pradesh's agricultural marketing framework is unique as it consists of two distinct sets of measures:

- Development and regulation of primary markets, popularly called 'mandis'.

- Regulation of market through a series of legal instruments.

If both the functions performed by the activity centre/ Agriculture Produce Marketing Committee (Mandi) are complementary to each other, it would lead to fulfilment of the provision and objectives of the step. Also, faith would be instilled in the farmers to use the system as well as to get fair returns for their produce. This necessitated efficient, transparent and diligent working of the Mandi office so as to facilitate prompt availability of information, reports, and analysis to the users and seekers. It was, therefore essential to graduate from the present manual process to an ICT enabled process.

4.5.2 Computerisation of Mandis

The Mandi Board started the work of computerisation in one mandi in 2000. But the effort was not successful since an integrated approach was not conceived and there was lack of IT awareness among the mandi officials. In January 2002, the task to study the mandi operations and to suggest the methodology of computerisation was entrusted to the Madhya Pradesh Agency for Promotion of Information Technology (MAP_IT). After a detailed study, MAP_IT suggested the computerisation of all mandis with integrated networking on Build-Own-Operate (BOO) basis on Public-Private Participation (PPP) model. This became the EKVI project.

4.5.3 EKVI Project

EKVI project, the e-Agriculture Marketing project of the Government of Madhya Pradesh, was conceived and executed by the Madhya Pradesh Agricultural Marketing Board (Mandi Board) and Madhya Pradesh Agency for Promotion of Information Technology (MAP_IT) on Build-Own-Operate (BOO) basis with the vendor

consortium comprising SQL Star International Ltd of New Delhi, Zoom Developers of Mumbai and iSmart International of Mumbai. It involves use of ICT for automation of Mandi Board Head Office, 7 Regional Offices, 231 Mandis and their associated Sub-market yards and Nakas (Inter-state barriers) across the State of Madhya Pradesh. Most of the mandis and sub-mandis are located in villages having 6 million farmers with 70,000 licensed traders. The data generated at mandis with regard to agricultural produce, sale, etc. are captured online through smart card terminals, transferred to computers in mandis and transmitted through a communication network to the associated Regional Office (RO) and Head Office (HO) via VSAT. It is then made accessible to the specified Nakas for verification of documents on a 24 x 7 basis.

Thus, MAP-IT's EKVI project provides an essential and reliable support to agriculture — an income generating sector which has been performing short of its potential.

4.5.4 Objectives

The EKVI Project was started with the objective of professionalising and reorganising the agricultural trading business of the Mandi Board through cost-effective digital infrastructure using the latest advancement in ICT. It aimed at collection and delivery of real time information on-line to make operations more effective and totally transparent, benefiting all stakeholders (farmers, traders and Government) and empower them with accurate and timely information for effective decision making. The infrastructure developed is designed to create grain-less mandis by removing the need for movement of agricultural produce from the farmer's premises to the mandis. The enhanced competitiveness of Indian agriculture induced through such a market-led IT - based model is envisaged to trigger a virtuous cycle of higher productivity leading to higher rural incomes and capable of creating and meeting vibrant future market requirements as well as facilitating farmers' risk management.

4.5.5 Business Model

The Business Process Outsourcing (BPO) model is used here since it is the most accepted approach for fast track projects for conserving the public resources and getting the best technical support in ever changing technology

scenario. The project is rolled out by the vendor (Consortium of SQL Star International Ltd of New Delhi, Zoom Developers of Mumbai and iSmart International of Mumbai) on Build- Own- Operate (BOO) basis. The vendor is responsible for all project activities from hardware deployment, networking (LAN, WAN, etc.), maintenance and periodic upgradation of hardware/software to disaster management, running of the system (along with deployment of man power), generation of reports, providing their print outs, taking backups, providing back - up power for running the system, etc.

The advantages of the project being on BOO basis are:

- The vendor undertakes all the investments and recurring expenditure
- Roll out of the project in the shortest possible time
- Technology obsolescence is fully taken care of
- Single responsibility for all services pertaining to the project
- Transparency in operations
- The vendor trains Government staff during the course of roll out

4.5.6 Revenue Model

Since it is a BOO project, the vendors make all the investments and incur the recurring expenditure. They are also responsible for all services pertaining to the project. Users, i.e., the mandis and the Mandi Board pay only for the services rendered as a percentage of the mandi fee collected. Additional returns could be generated with written approval from the Mandi Board from the advertisements made at mandis about the agricultural produce and related items such as fertiliser, seeds, pesticides, farm practices, agriculture produce export order, etc.

4.5.7 Phased Implementation

The Pilot Project was done at the following sites:

- Mandi Board HO, Bhopal
- Mandi Board Regional Office, Indore
- Laxmi Bai Mandi, Indore
- Chhavni Mandi, Indore
- Fruit and Vegetable Mandi, Indore
- Sendhwa Naka
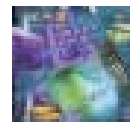
The Pilot Project for EKVI was evaluated and approved by the Mandi Board and the rollout is being undertaken as per approved plans for computerisation.

4.5.8 Technology Description

The vendor has developed the software whose patent (Intellectual Property Rights —IPR) is with the Madhya Pradesh Mandi Board. In addition to covering mandi transactions, the software works on a host of other mandi activities like financial accounting, payroll and establishment, engineering, MIS, elections to posts of mandis functionaries and naka operations. The software is in Hindi but has the English option.

Very Small Aperture Terminal (VSAT) connectivity is used for receiving and transferring of data, reports, etc. from the market yard of the mandi with leased line backup. The VSAT network provides the following services:

- Data Transmission from Mandis to RO and HO
- Data Transmission from RO, HO to the mandis
- Video Transmission

On the VSAT network, data pertaining to the rates and quantity prevailing across the mandis would be broadcast and displayed on a TV screen. A separate electronic board to display rates at the entrance of the mandi is also arranged to facilitate the farmer's knowledge of the rates before entering.

The availability of video streaming facility with interactivity to all the mandis can be effectively used for training farmers on farming methods and also use it as an 'Agro Clinic' when required.
At the same time, advertisements can be broadcast and displayed on the screens across the mandis if required.

In the event of any natural calamity this VSAT-based communication system spread over the whole State would provide a standby to the land based communication systems for use by any other departments/agencies.

4.5.9 Benefits to stakeholders

The benefits accruing to the various stakeholders are:

To the Farmers:
- Availability of latest information on rates, arrivals etc. in various mandis.

- Choice to decide when and where to sell
- Sell the produce at door through e-Trading
- Reduction in losses due to transportation and handling

To the Traders:
- Transparent procedures
- Single window disposal
- Reconciliation of daily sales, accounts, transit permit
- Availability of rates in various mandis will help in offering competitive rates to farmers
- Reduction in transportation losses

To the Mandis:
- Instant reconciliation of accounts, transit permits receivables and payables
- Effectively monitor its activities
- Facilitate implementing contract farming
- Ensure transparency in operations

To the Government:
- Speedy collection, analysis and dissemination of information to farmers and traders
- Improved tax revenue collection by collating this data with commercial tax, income tax, etc.
- Instantaneous access to even remote locations through VSAT connectivity, which can be effectively lead to good governance through dissemination of information.

The development of the e-Mandi module has helped the mandis carry out the transactions outside the mandi premises and effectively capture the transactions as well as provide the information on rates and other matters to the farmers and traders. Also, it has integrated private initiatives to purchase produce in places other than the Mandi, but still obeying the law of the land. The confidence of farmers in the mandi system has improved considerably and the suspicion on private initiatives is reducing once the farmers have come to know that they too are part of the recognised system of the State. The tendency to evade mandi fees has reduced considerably because the traders now know that the automated system is capable of tracing the transactions.

The module covers all the basic procedures of accounting for the mandi, including Cash and other accounting

books, accounts receivable and payable, budget preparation and analysis of income and expenditure statements, and, reconciliation of bank accounts. It also handles tasks related to administration of the mandi-staff details, gradation lists, etc., payroll management and generation, advances and recoveries, pension management, employee's service record and other related reports. The software is useful in preparing the voter's lists of farmers and traders and enables the analysis of voters' profile in a mandi.

Based on the above data the software will generate various physical and financial reports on a daily, fortnightly, monthly and yearly basis. Daily/monthly data for rates/arrivals would be directly uploaded from the mandi on to the Mandi Board web site. The software at Naka would cross check Anugya Patras authenticity at Naka points.

4.5.10 Highlights of the system

The highlights of the capability of the system are:

- The software can instantly calculate and display mandi arrivals, rates, sales, the fee payable by traders,

reconciliation of accounts, transit permits, etc.

- Information super-highway established with VSAT connectivity among various levels located at even remote places for seamless flow of information

- State- of- the- art, three-tier architecture.

- Smart card interface for online capture of information
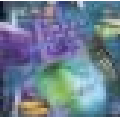
- Modular in nature

4.5.11 Conclusion

Government–Private participation on BOO basis in IT is a reality now. The 'User Charges' concept is a sustainable model and works without involving huge investment from the Government. The role of MAP_IT, an IT consulting agency, has clearly come out as a catalyst and a facilitator for the success of the project.

The project can easily be replicated in all States/countries, including those that are socially and economically backward owing to the BOO framework which does not demand an initial expenditure from the exchequer.

4.5.12 Analytic Synopsis

Approach	Indicators
Sen's Approach	**Increase in productivity** - This initiative has proved to be successful in improving the productivity potential of Agriculture by enhancing its competitiveness in the trading business and making it more professional. In addition, access to prior information has empowered farmers to take informed decisions and enabled them to improve production. For example, access to prices has enabled the farmers to sell the produce at the right time and at the right place. **Extent of coverage** - The BOO model has not only made the roll out phase easier in the shortest possible time but could also be replicated in educationally and economically backward areas as no initial expenditure is to be made to from the exchequer. **Human development** - This system caters to the farmers and has given them an opportunity to enhance their local livelihoods. Involvement of the farmers in the whole system has resulted in an increase of their self-esteem and has restored their faith in private initiatives. The VSAT- based communication network established in around 400 locations all over the State is also used for educating the farmers on new techniques of farming, use of fertilisers, weather forecast and issue of disaster warnings and communication of any disaster in any part of the State to help bring quick responses to the victims of disasters.

Brown's Approach	**Increase in income**- The model has generated employment opportunities for the locals near their homes, which also helps the vendor to get human resources at reasonable rates. All the stakeholders have experienced a rise in their incomes. The farmers are getting competitive remuneration being paid by the traders; Government is benefitting through increased revenue collections; there has been a substantial increase in the collection of mandis, thereby helping both traders and the mandi.
	Improvement in delivery mechanism - Prompt availability of information, reports and analysis to the users and seekers, reduction in transportation losses, soft benefits like increased transparency in operations and effective monitoring of its activities-all this has substantially improved the delivery mechanism. For instance, quick issue of transit permits and its reconciliation at various Nakas ensures that the State's agricultural produce is not transported without a valid permit.
Sustainability/ Scalability/ Profitability	The user charges concept has made it a sustainable model with no initial expenditure from the exchequer. Being a BOO model, the vendor makes all the investments and recurring expenditure with no initial allocation from the state government. The model has no hassles with regard to replication in other areas.

Lokvani-An effort to empower citizens

An Initiative of the UP Government

- E-delivery and e-Governance can be combined with e-Accountability
- Start from district level initiative to go to rural level initiatives. Even a non IT savvy State can start the initiative from district level downwards.
- Aiming at using existing pool of entrepreneurs rather than creating one, provides a risk free environment for the program to succeed.

4.6.1 Background

Sitapur's (Uttar Pradesh) Lokvani is a Service Oriented e-Governance system which attempts to provide efficient and responsive online services to the common people and seeks to increase transparency and accountability in Government procedures. The old, manual system made it mandatory for citizens to visit the district headquarters or tehsil for any simple transaction with the Government and for redressal of their grievances. Due to the bureaucratic and hierarchical model of functioning, even ordinary documents such as birth, death, domicile, caste and income certificates were difficult to obtain and the entire process was time consuming. The conventional administrative mechanisms were constrained by their inability to reach out to most of the citizens and the process of service delivery was marred with red tape. The inadequacies in two such systems are highlighted below:

Tehsil

- Dependence on Lekhpal for land records.
- Delay and corruption in obtaining copies of land records.
- Unnecessary secrecy leading to land scams.

Redressal of public grievances

- Applicant can't track the progress of his application.
- Lack of effective monitoring system for senior officers.
- Problem of approaching the district headquarters from remote places regarding applications/grievances.

The only way out of these issues is to use technology effectively to make governance more accessible to citizens.

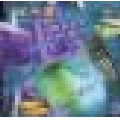## 4.6.2 New Initiative in Sitapur District, Uttar Pradesh

Lokvani is a step in the aforesaid direction. In Hindi, it means 'voice of the people'. It is a public-private partnership project to provide a single window, self-sustainable, e-Governance solution guaranteeing transparent, accountable and responsive administration for grievance handling, land record maintenance as well as an eclectic mix of essential services. The project was conceived by Mr Amod Kumar, the then District Magistrate, who came up with a model of governance using ICT to manage the delivery of services to all the citizens.

4.6.3 e-Accountability

Lokvani stands out among e-Governance projects as it symbolises the success of the concept of e-Accountability as the next step of e-Governance. While other e-Governance efforts are limited to serving the citizens by providing existing services electronically, Lokvani goes beyond that and makes Government functionaries accountable to the citizens. From e-Delivery and e-Governance, Lokvani tries to ensure e-Accountability and e-Democracy. Now, e-Governance cannot sustain until the common man is empowered to make Government and its officers accountable. Not only does information flow from Government to citizen but the latter too may verify and ask questions if not satisfied. This makes Government accountable to its citizens.

4.6.4 The Lokvani Model : Conceptualisation and Management

The District Magistrate of Sitapur commissioned a study of similar G2C (Government to Citizen) initiatives in

the districts of Jhalawad (Rajasthan) and Dhar (Madhya Pradesh) to assess the strengths and weaknesses of these efforts. Lokvani was accordingly designed to improve upon them.

The Lokvani Society was constituted in order to implement the project autonomously and to reduce bureaucratic hassles. NIC provided the necessary technical knowhow for the project. It was decided that instead of opening new kiosks, existing cyber cafes/computer training institutes should be granted licenses to become Lokvani Centres. This decision was taken to ensure the financial viability and the long-term sustainability of the kiosks. The information related to various departments was made available to the kiosks through a web site hosted on the NIC Delhi web server. The kiosks were given login/passwords to log on to the Lokvani web site. The rate list for the services was finalised and care was taken to ensure that the kiosks follow the prescribed pricing.

4.6.5 Project Objectives

Lokvani's vision is to give strength to governance for combating corruption and putting in place policies and investments to drive public and private sector-led growth and maximise domestic resources available to fund district development strategies. It is a commitment to people to give them transparent, credible and accountable systems of governance, grounded in the rule of law, encompassing civil and political as well as economic and social rights, underpinned by accountable and efficient public administration for multiphase development of the people. The objective of this project is to eliminate the digital divide and connect people to strategy makers in a seamless manner. Thus, in operational terminology, it is making people aware of Government services and world aid available to them. It is delivering qualitative and quantitative information to every person in the administration as well as to every target beneficiary. Its goal is to connect people through Lokvani for raising their living standard by providing health facilities, employment, awareness of human rights, environment to grow, education opportunity, and, corruption free governance.

4.6.6 Service Delivery - Range

The following services are offered through Lokvani Centres:

- Online submission, monitoring and disposal of public grievances/complaints
- Single window services
- Birth certificates
- Death certificates
- Caste certificates
- Income certificates
- Domicile certificates
- Tendering services
- Status of arms license applications
- Information about local employment opportunities in the district
- Availability of land records (Khataunis) on the Internet
- Information about Government works, schemes, expenditures, beneficiaries (GPF Account details of basic education teachers, details of work done under MPLAD/Vidhayak Nidhi, allotment of food grains to Kotedars, etc.)

Services like land records, arms license application status, GPF accounts of basic education teachers are available online now. To ensure transparency, details of developmental works, ration allotment to fair price shop dealers, money sent to Gaon Sabhas etc. are made available to people. The most popular service till date has been Online Public Grievance Redressal. The Lokvani system not only gives citizens an avenue to track the progress on their grievance, but also provides the DM an effective tool to monitor the performance of various departments.

4.6.7 The Lokvani business model

To ensure the financial viability and long-term sustainability, the project was implemented through the public-private partnership model. A society by the name of Lokvani was constituted and registered at the district level to function autonomously without bureaucratic hassles. This society, instead of opening new kiosks, decided to use the existing cyber cafes/computer training institutes and identified a set of dynamic young entrepreneurs (with whom the district administration had interacted during an earlier project - computerization of land records) to spearhead the Lokvani initiative. An entrepreneur was required to take a license for becoming a "Lokvani Kendra" by paying Rs 500 (now revised to Rs 1,000) as registration fee. These licenses were to be renewed annually by paying Rs 1,000.

The Lokvani society meets its recurring costs from the payments received from the registration of kiosks, lifetime and annual Lokvani membership fees and other grants. The hardware and software support was provided by NIC free of cost. Revenue for the Lokvani Kendras comes from the users for accessing the Lokvani services (see table 25 for the rate list).

Table 25: Rate list for Lokvani services

S.No.	Activity	Fees
1	Registering a complaint	Rs 10.00
2	Viewing any information on the computer	Rs 5.00
3	Printing of any complaint/ information (per page)	Rs 5.00

Lokvani insisted that entrepreneurs finance their ventures themselves and the contract signed between Lokvani and the licensee explicitly stated that there would be no financial support to licensees. This was done to give the kiosk-owners and citizens a sense of stake in the initiative. The basic belief behind this business model was that the kiosk-owners would be self-motivated to generate revenue, and therefore promote the services of Lokvani.

Neither the Government (DM's office) nor the Lokvani society was required to take up marketing of the initiative. All they had to do was ensure that news about Lokvani was there in all the local newspapers. The media and the Lokvani Centre owners acted as a significant pressure group on the officers to ensure an efficient redressal mechanism.

4.6.8 Sustainability

- As the project is based on PPP, it is expected to be a profit-driven business model and is more likely to sustain because kiosk owners and citizens would work as a pressure group
- A lot of information and many services are provided on Lokvani to make it more viable
- State-wide replication by Government Order making it a part of governance resulting in a permanent change in the service delivery mechanism
- Negligible operational costs

4.6.9 Lokvani: A success

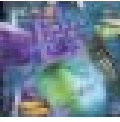The project was a great success despite the challenges it faced in the form of:

- More than 80 per cent of the population is rural
- Less than 38 per cent literacy in the district
- Only 6 to 7 hours of power supply in the semi-urban areas
- Poor Internet connectivity
- Negative mindset of Government functionaries towards any change in the system
- Almost negligible computer literacy in the district

Innovative features of the model include:

- No loan /Government subsidies was taken for setting up kiosks. This has never been tried before in the country
- Use of existing infrastructure/portal instead of creating new one
- Innovative PPP business model was tried for the first time in rural India
- Internet-based, kiosk-supported approach of service delivery having two-way communication between citizens and Government (through web) tried out for the first time.
- Locally designed simple software in Hindi developed incrementally as per people's requirements.
- Profitability and competition among kiosks used to overcome the infrastructure problem created by poor power situation (only 5-6 hours of availability per day), poor connectivity, illiteracy and backwardness
- IVRS (Interactive Voice Response System) based on Hindi TTS (text to speech) used for the first time in the country
- Intensive citizen engagement

4.6.10 Phased Implementation

A deadline for November 15, 2004 was set for the test launch of the site. Pilot testing the site with their public grievances/complaint services started on November 8, and was fully operational by December 10, 2004. Initially, 13 Lokvani centres (with two in each tehsil except Mishrikh which had three kiosks) were set up. In the first 20 days, the number of complaints received per day

was less than 10. By the first month, the number increased to between 10 and 100. By the end of three months, the number of complaints crossed the 100 mark. As on July 15, 2005 Lokvani had received 28,008 complaints, of which 24,089 had been attended to, or "resolved". The unresolved complaints included 171 complaints that were beyond their due dates, 3,255 complaints within their due dates, and 493 complaints that were yet to be marked to a specific office.

Since then, the contents and services on Lokvani have grown gradually and so has the number of kiosks. The number of kiosks increased to 26 by March, 2005 and as of February, 2006 the total number of kiosks in the district is 42.
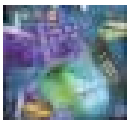
4.6.11 Achievements

- First successful G2C project in UP
- Recently Lokvani received Golden Icon Award from Government of India under the service delivery category
- It was one of the few best practices of the country, which were presented before the Cabinet Secretary, GOI in Vigyan Bhavan, Delhi.
- Demonstrated before IAS trainees at Lal Bahadur Shastri National Academy of Administration (LBSNA), Mussorie
- Lokvani has been widely quoted and discusses in leading national magazines and newspapers like India Today, Outlook, The Times of India, etc.
- Lokayukta, UP also praised Lokvani for its services to citizens of Sitapur
- UP Government has issued a Government order to replicate it throughout the State
- The President of Lokvani has won the Dataquest e-Governance Champion award in New Delhi recently.

4.6.12 The challenges ahead

The success and popularity of Lokvani can be gauged by the quick adoption of the model by other districts in UP. The challenges for the Lokvani are, however, considerable.
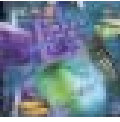
1. This model of Lokvani has worked quite effectively up to the tehsil, block, and town level. To spread the Lokvani network to the village level, some initial investment in hardware (computers, power support - UPS or solar panels and Internet connectivity) is required, and the Government would be expected to share at least some part of it. Also, at the village level entrepreneurs would be difficult to locate.

2. Another critical factor in ensuring sustainability of the Lokvani initiative would be to add sufficient information and services in Lokvani and make the kiosks viable. Additionally, kiosks could also generate revenue by providing services like computer education, typing, digital photography, etc. The lack of these services could be the binding constraint for scaling up this project

3. Lokvani would need to graduate from first generation e-Governance (creating a system of receiving, monitoring, and responding) to second generation e-Governance (a system that ensures efficiency along with effectiveness - ensuring satisfaction of the customer). Thus, the emphasis would be on the "quality of response" from the citizens. Appropriate measures (like an index of customer satisfaction) need to be developed to ensure the quality of resolution.

Lokvani has laid a firm foundation for the e-Governance in Uttar Pradesh and if the project proves to be a profitable venture, it could be a torchbearer for other such G2C efforts across the country.

4.6.13 Analytic Synopsis

Approach	Indicators
Sen's Approach	**Increase in productivity** - This is achieved as the project has been implemented autonomously with the aim of reducing bureaucratic pressure. The functioning of the Collectorate has been streamlined by reducing the response time and improving the efficiency and productivity of manpower in handling public grievances through the Internet and increasing their accountability before the people. The Lokvani society has helped the Government avoid procedural delays by providing online forms for various applications. The fast disposal of public grievances has been made possible by attending to their complaints online. Lokvani provides a tool to monitor performance of staff. Since the complaints are now traceable, and the action taken available on the web site, corruption is reduced and Government has become more transparent and accountable to citizens. **Extent of coverage** - A major reason for the success of the project has been the 'ease-of-use' to the citizen, especially the illiterate villagers staying in remote areas and senior citizens with the use of text-to-speech software. Citizens do not need to travel long distances to the District Collectorate. They can simply visit the nearest Lokvani centre to access any information they need. The Lokvani centre enters the complaint on behalf of the complainant, thus obviating the need for the user to be literate. A chain of 42 Lokvani kiosks spread throughout the district has been established by licensing existing cyber cafes Lokvani system has empowered the citizens by generating awareness towards their rights through a seamless flow of information. It is an outstanding manifestation of the Right to Information **Female participation** - A noteworthy fact is that 10 per cent of complainants are women from rural interiors, despite the female literacy rate being as low as 12.74 per cent
Brown's Approach	**Increase in income**- Young people have been trained to look after the centres making them confident and self-reliant, promoting entrepreneurship and helping society move away from traditional forms of business. Thus, the initiative has created job opportunities. **Improvement in delivery mechanism**- Better dissemination of Government information has created awareness among rural masses about various Government schemes, thereby saving time and cost of people who visit district headquarters time and again for getting information.
Sustainability/ Scalability/ Profitability	**Sustainability**- Though care has been taken to ensure the long-term financial viability of the project through the conversion of existing cyber cafes/ computer training institutes into Lokvani centres and raising short-term and life membership fees to meet recurring expenses, it would be premature to call the venture a financial success. In addition, infrastructure, power, and telecommunications are some of the barriers against which the viability of the project remains to be tested. The failed experience of the Akshaya project in Kerala, which was also a franchise-based business model with very low user charges, urges us to adopt a 'wait and watch' policy for 3-4 years. **Scalability** - Again, the issue of scalability hinges on whether the model turns out to be self-sustainable and financially viable **Profitable**- It would be prudent to wait to comment upon the profitability of the Lokvani model and to escape the experience of the Akshaya project, where the entrepreneurs felt demoralised and discontinued the Infokiosks

Case Study 7:

Tamilnilam

The Land Records Computerisation Project of Tamil Nadu

TAMILNILAM - Land Record computerisation project has been implemented with 100 per cent financial assistance from the Government of India under Centrally Sponsored Scheme. There are charges levied for serviced availed by the public; the project has proved to be self sustaining.

4.7.1 Background

The Tamilnilam (Tamil Nadu Infosystem for Land Administration and Management) project is a milestone in the history of three departments: Revenue, Land Administration and Survey and Land Records. Nilam means 'land'. The project, which was introduced with the objective of computerising land records data for the benefit of the public, has brought about a sea change in the land records system of Tamil Nadu. The project has led to enormous benefits for the public. Patta copies are available across the counter in 201 of the 206 Talukas for a nominal fee of Rs 20. For a fee of Rs 2, all landowners can view the data relating to their land.

4.7.2 Objective of the Project

The objective of the Tamilnilam project is to ensure that land record data is fully computerised so that it can be used both for issue of copies of record of rights as well as for various other purposes, which are summarised as follows:

- Delivery of all possible citizen-centric e-Services
- Issue of Chitta extract (Record of Right) / A Register extract / Adangal extract to citizens
- Tamper proofing land data to reduce land disputes
- Creation of master data base for storing plot wise and owner wise details of land, crop, revenue, etc.
- Generation of periodic reports on land records through the computerised system
- Improved and efficient service
- Easy maintenance and update of land records
- Transparency in administration
- Availability of information to public through Touch-Screen kiosks
- Exchange of data with other departments such as the Sub-Registrar's Office, Agriculture Department, etc.

In short, the main objectives of the scheme are:

- Taking the administration closer to the public by making data easily accessible to public
- Quicker delivery of extracts of documents to land owners and others

4.7.3 Services offered by Tamilnilam

The transactions handled by the Tamilnilam software are:

1. Full field Patta transfer
2. Joint Patta transfer
3. Sub-division of land
4. Merging of sub-divisions of land
5. Change of Classification of land
6. Adangal (limits of the land)
7. Assignment
8. Alienation
9. Land acquisition
10. Encroachment on the land
11. Land revenue
12. Settlement

Apart from issue of land records extract, computerised services include:

1. Grievances monitoring system
2. CM cell petitions monitoring system
3. Issue of different certificates such as land ownership, birth and death certificates etc.
4. Old age pension
5. Disbursement system
6. Payroll

4.7.4 Business Model

The Tamilnilam project is being implemented in the State with 100 per cent financial assistance from the Government of India under a Centrally-sponsored scheme. The land owners can view the data relating to their land for a nominal fee of Rs 2 and the Patta copies are available across the counter in 201 of the 206 Talukas in Tamil Nadu for a fee of Rs 20. On an average, more than Rs 25 lakh has been collected as User Charges through the services provided every month. The project had generated revenue of Rs 90 lakh within 18 months of its implementation. So far, 60.36 lakh computerised land records extracts have been issued to the public. In all, Rs 12.24 crore has been collected as User Charges.

4.7.5 Implementation Status

Tamilnilam started out in April 2002. It was first implemented in 29 Talukas as a pilot project and later on replicated in the remaining 173. Currently, the software has been implemented in all the rural Talukas of Tamil Nadu. To increase the Government — public interface, Touch Screen Computer Kiosks (TSCK) have been installed in 127 Talukas and the remaining 79 Talukas would be covered in the near future. On an average, more than 1.25 lakh citizens are availing the services like Chitta / Register extract using Tamilnilam each month.

4.7.6 Software Features of the System

The software used for Tamilnilam is in the local language, thus making it user friendly. It also provides for role-based privileges, user logs and history tables, printing of Chitta extracts for public, printing of public transfer orders, sub-division order printing and maintenance details of crops. Ad hoc query facility is also available.

4.7.7 Hardware Infrastructure at Talukas

Each Taluka has been equipped with one Server, three clients, one dot matrix printer, a laser printer, and a UPS. Some of the Talukas, as with the one in Perambalur district, have additional clients under specific projects. Touch — screen kiosks are available in 127 Talukas.

4.7.8 Training

For operating the Tamilnilam software, key resource persons were identified and trained at talukas. About 8,000 revenue officials were given overview training on computers and Tamilnilam software usage. NIC (National Informatics Centre) TNSC (Tamil Nadu State Centre), Chennai conducted workshops for DROs. Five days' training programmes were also conducted for selected Tehsildars. NIC District Informatics Officers are conducting training on need basis to Taluka officers on Tamilnilam.

4.7.9 Business Process Reengineering

- The Government of Tamil Nadu has discontinued with issuing manual extracts of land records and only computerised land records are being issued to the public

- The Commissioner of Survey and Settlement has issued an Order stating that the transaction details of every land transfer should be first entered in the Taluka computer

- The Order mentions that the Order for Transfer of Land should be generated from the system computers and the tehsildar must sign only such system generated orders

- The Government has issued instructions that as soon as Form 6 is received from the registration department along with the signatures of the seller and buyer authenticated by the Sub-Registrar, the Patta transfer process can be initiated immediately by the Taluka office

- Adequate training for all Revenue staff has been provided to handle the system, besides key resource persons at each Taluka

Taluka Office-Sub Registrar Office Connectivity

The Government has decided to interconnect the taluka offices with the sub-Registrars' (SR) offices. The main objective is to reduce the time delays involved in transferring the changes from one office to other. In the first phase, Taluka and SR offices, which are on the same campus, have been interconnected. The SR's office can view the land details for any survey number and sub-division number before registration. The Taluka office can also view the details of registration and initiate Patta transfer process.

Intranet-based monitoring system

NIC TNSC has developed Intranet based systems for the purpose of monitoring by the Office of Special
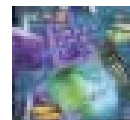
Commissioner of Survey and Settlement the following activities:

- Kiosk Collection
- Tamilnilam Implementation
- Adangal Data Entry Progress

4.7.10 Achievements

- The initiative was an award winning project and the team leader, Shri T.K.Ramachandran, received an award from the Deputy Prime Minister, Shri L.K. Advani, during the 7th National e-Governance conference held on November 14, 2003 at Chennai

- The project also received the Skoch Award in February 2005

4.7.11 Conclusion

This new initiative has introduced transparency and is citizen friendly. It has reduced red tape and has cut out middlemen by throwing open direct access to the public. In the process, the project has proved to be self-sustaining, generating revenue of approximately Rs 90 lakh within 18 months of its inception. Public reception to the project has been very encouraging and has reinforced faith in the concept that if the service interface is 'good' – meaning transparent, prompt and corruption-free – and if it delivers value for money, the public is willing to pay.

4.7.12 Analytic Synopsis

Approach	Indicators
Sen's Approach	**Increase in productivity** - This is achieved as the project has led to quicker delivery of land extracts documents to land owners and others. Tamilnilam has helped the Government in avoiding procedural delays in providing land-related extracts through online availability of information at the kiosks. Fast disposal of public grievances has been made possible by attending to their complaints online.. **Extent of coverage** - A major reason for the success of the project has been the 'ease-of-use' to the citizen, with the use of touch screen kiosks as well as availability of content in local language. The touch- screen kiosks have been set up in 127 out of 201 Talukas where the project has been implemented.
Brown's Approach	**Improvement in delivery mechanism**- Tamilnilam has cut down red tape and has reduced middlemen in the process by providing direct access to information and services to the public.
Sustainability/ Scalability/ Profitability	The project has been implemented in the State with 100 per cent financial assistance from the Government of India under centrally sponsored schemes. It has proved to be self-sustaining, generating revenue of Rs 90 lakh within a year and half. There is a user charge for most of the services offered thus, making it self sustainable.

e-Kosh- Computerisation of the Treasury Department
An Initiative of the Chattisgarh Government

> e-kosh- the computerisation of Treasury department of the state of Chattisgarh has not only improved the internal efficiency but also has brought about transparency in the procedures of the department.

4.8.1 Background

The Treasury is the focal point of the initial financial transactions of the Government. For efficiency and transparency in financial management, any Government depends primarily on timely preparation of accurate accounts. In the pre-computerisation era, when accounts were prepared manually, delay in preparation of monthly treasury accounts was a regular feature. Moreover, it was difficult to verify their accuracy. As numerous discrepancies crept into treasury accounts each month, it became extremely difficult to tally the treasuries' figures with those of banks. This resulted in the delay in preparation and submission of error-free treasury accounts. To overcome these difficulties, the Chattisgarh Government sought the computerisation of the treasury department.

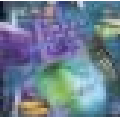The challenges faced by the Treasury Department before computerisation were:

- Unmanaged financial accounting system
- Control was not possible on overdraws at the field level due to the lack of an efficient budget control mechanism
- Non-availability of information on expenditure/receipts on a day-to-day basis as submission of sub-treasury level information took place once/twice a month.
- Submission of misclassified expenditures/receipts created trouble during the reconciliation of accounts
- Delay in processing of pension cases at divisional joint directors' offices
- No control over pending bills at a higher level
- No transparency in payment procedures, thus making the system completely dependent on the discretion of the Treasury Officer/Staff.

In 1998-99, Foxplus software was developed for the department by the NIC-MPSC department. However, the software was only serving the purpose of compilation of reports that were required to be sent to the Government, local maintenance and to the Auditor-General (AG)'s office. The account details were unclassified and it was not possible to check budgets before passing the bills. The other anomalies associated with Foxplus software were:

- No control on the over drawls of bills by Drawing and Disbursing Officers (DDOs)
- Classified reporting system was not possible.
- Data from sub-treasuries was taken to district treasuries only twice or thrice each month resulting in information gaps at higher levels of the department on day-to-day payments /receipts position at various locations
- Settling of pension cases took a long time (no software available for this earlier) thus affecting the financial status of pensioners

4.8.2 New initiative

To overcome the above discrepancies, particularly to ensure that bills were passed in consonance with the sanctioned budget allotments, and, to assess the financial position of the State at a given point of time, the Department decided to avail advanced technologies and therefore approached NIC for providing necessary solution. The project was taken up on a turnkey basis in 2003-04. The Directorate of Treasury Accounts and Pensions launched the project 'e-Kosh' in 2004. The project focusses on online passing of bills at treasuries in consonance with the sanctioned budgets for expenditure and also maintains the classified head of account for each bill. This avoids overdraws by field level DDOs and facilitates submission of updated and classified information on expenditure and receipts to departments

and the Government from the lowest level of the sub-treasury on daily basis.

4.8.3 Key Objectives of the e-Kosh Model

The major objective of the system is to monitor, control and execute financial transactions (payments and receipts) of the State Government and compilation of financial statements/reports for the State Government and AG. The other objectives of the project are:

- To develop a web-enabled, easy-to-use software to automate the entire procedure pertaining to the activities of the Treasury Department

- To provide information on actual receipts/payments on a day- to- day basis to the Finance Department so that the actual finance position can be made available which is vital for planning purposes

- To provide IT-enabled services to the end-user, who may be a pensioner, or a department that submits bills for payment using the state-of-the-art technology

- To provide complete transparency of the treasury procedures to the consumer base so that the consumer can get the benefits of real governance

4.8.4 Implementation Strategies

The Department of Treasury, Government of Chattisgarh, approached NIC Chattisgarh, for providing software solution to effectively monitor the activities of district treasuries and sub-treasuries and the State Department of Treasury. Accordingly, an NIC team studied the complete workflow of the Treasury and a detailed report was prepared. A new model, *e-Kosh*, has been designed to bring online the activities of the Department of Treasury in the State to improve its functioning, provide important information at the State level on a day-to-day basis and achieve transparency among departments, public and department of treasury and to present web interface to the end-users for faster dissemination of information with reference to their cases. The software modules already available with the units of Punjab and Haryana were studied for implementation in Chattisgarh. It was felt that the procedure with respect to the payments was comparable with that of Punjab and hence the software developed by the NIC Punjab State Unit was obtained. Necessary customisation was done as per the requirements of the State Treasury Department.

NIC, Chattisgarh State, designed, developed and implemented a suitable model to automate the functioning of the treasury system with respect to its major sub-systems of Payments, Work Accounting, Deposit Accounts, Receipts, Pensions and Stamp Accounting. The total project cost was Rs. 11.54 crore spread over three years.

The key stakeholders of the project are Director FMIS (Financial Management Information System), Director (Treasuries Accounts and Pensions), other executive and field-level staff of treasuries, AG office, NICSI (National Informatics Centre Services Inc.), SATCOM (Satellite Communication) group of NIC and NIC team from Chattisgarh State Centre.

4.8.5 Phased Implementation

The project rollout took place in three phases of implementation.

Trial Implementation: The project was implemented on trial basis in the city treasury of Raipur, Chattisgarh from August 2004 to October 2004. All the practical procedures were tested and refinements were made in the software with respect to payments and receipts excluding the requirement of data merging and pension payments at treasuries.

Pilot Implementation: The project was then taken for implementation in two districts of Raipur and Korba, covering their respective eight sub-treasuries in November 2004. All aspects, including budget control through the central server, pension payments at treasuries, merging of sub-treasury data into the data of the district treasuries on a daily basis, were successfully tested in this phase.

Final Rollout: After a successful pilot phase, the project was rolled out for implementation in all the remaining 14 districts and 38 sub-treasuries in April 2005.

4.8.6 Technology

- DVB VSATs capable of providing up to 384 kbps connectivity is being used to check the field-level data with data available at the central server for every transaction in the payments sub-system

- Java-based web module hosted on Oracle Application Server is used to capture the information on budget

allotment from various locations across the State. Budget Controlling Officers input the data of budget allotment to district level DDOs at the central server. DDOs at the district level further input the allotment information to their sub-DDOs if any

- For checking payments under each head, the locking and unlocking mechanism provided in SQL Plus has been used for effectively updating the information at treasuries and the central server in a distributed database environment.

4.8.7 Benefits accrued from this project

1. Online communication of budget allotments to DDOs from Budget Controlling Officers
2. Misclassification of heads is checked through software
3. Online bill passing in consonance with sanctioned budgets in case of budgeted bills
4. Non-budgeted bill passing is checked through software
5. Daily merging of sub-treasury data with district treasury data for preparation of accounts with respect to payments, receipts, pension payments, issue of cheques, payment status of cheques
6. Online updating of payment status from every treasury/sub-treasury at the central server
7. Processing of pension cases streamlined at JD offices
8. With the help of information on scheme-wise expenditures, the departments are able to monitor the budget requirements.
9. Internal efficiency is improved, eliminating manual maintenance of records
10. Implementation of Payments sub-system has ensured that all the manual procedures are translated in a systematic and classified manner
11. Implementation of Receipts Sub-System with establishment of proper linkage between Payments and Receipts modules
12. Integration of Deposit Accounts with payments and receipts sub-systems provide the required information
13. Integration of Pension payments at treasuries and works accounts to provide complete accounting information needs of the treasuries

14. Accepting data in soft copy from banks for receipts on a daily basis
15. Provides online information to departments and DDOs on expenditure and receipts as required

Improvements over the earlier system

1. Internal efficiency of treasury staff, thereby treasuries improved to a great extent
2. Transparency with respect to payment procedures is maintained till the highest level
3. Pending bills are monitored at the levels of Treasury Officer, Joint Director and Director (Treasuries) to ensure the early clearance of bills
4. Bill passing is under complete control from any treasury/sub-treasury
5. Time taken in bill processing is reduced to 1 or 2 days while it was 7 to 8 days earlier
6. Payments made from any treasury are recorded instantly at central server
7. Possible over drawl of funds by DDOs is completely avoided
8. Misclassification of heads pertaining to a bill is checked through software
9. While sub-treasuries' accounts were taken in district treasuries once/twice
10. Before implementation of the software, the data now is being merged on regular basis avoiding delay in submission of accounts to AG Office.
11. Matching of accounts at treasuries is now done with ease and accuracy as per classified heads
12. Status of bill(s) pertaining to any treasury/sub-treasury is available at the central server
13. Receipt of pension cases, processing and discharging of orders, viz. Pension Payment Order, Gratuity Payment Order, Commutation Payment Orders, etc. are streamlined at Joint Director Offices, thereby improving the speed and efficiency in disposing the cases.
14. e-Kosh online web interface has been provided to make the information available to departments, their heads and the public at large

4.8.8 Current Status

- Around 4,000-5,000 bills are entered and processed every day from all the treasuries across the State
- Around 3,000-4,000 cheques are prepared and issued to DDOs every day from treasuries on peak days
- 6,000 challans for receipts are captured from the treasuries including sub Treasuries every day
- Pension disposal time reduced from 3 months to 10 days
- Bill processing time reduced from 7 days to a maximum of 2 days

4.8.9 Future Plans

- Some of the points to be considered for further improvement in the working of the treasury department are:
- User authentication through biometric devices to achieve more secured access
- Electronic submission of monthly accounts to AG's Office
- Acceptance of receipts through e-Challan is to be worked out with Banks

4.8.11 Analytic Synopsis

- Data sharing with banks on payment of cheques to reduce the data entry related to discharging of cheques at treasuries
- To consolidate payroll related bills at DDO level for each employee-using employee database and submit a single bill electronically to treasuries. In turn, the treasury would be able to capture the bill information with respect to each employee in soft copy, which is required by the AG's office for employee level consolidation. The elimination of data entry of pay bills is expected to be reduced by 60 per cent at treasuries
- Electronic bill submission from DDOs using digital signatures is under consideration

4.8.10 Conclusion

The computerisation of the Treasury Department of Chattisgarh has improved the internal efficiency as well as has brought transparency in the procedures of the department. People may view information on expenditure incurred by any department on any scheme. District and head-wise receipt information can also be viewed for any purpose by all. The system has considerably reduced the total bill processing time.

Approach	Indicators
Sen's Approach	**Increase in productivity** - This is achieved as the total time taken in processing bills is reduced from 7-8 days to 1 or 2 days. Pending bills are monitored at the levels of the Treasury Officer, Joint Director, Director (Treasuries) to ensure the early clearance of bills at treasuries. The pension disposal time has also been reduced from three months to 10 days. **Extent of coverage** – The e-Kosh Treasury system has been made fully operational State-wide across all districts and sub-treasuries in Chattisgarh with online budget checking and centralised database at Raipur and Bilaspur. VSAT-based network has been established up to the block levels. Web based software has been implemented for effective monitoring of rural schemes. The e-Kosh online web interface has been provided to make the information available to departments, HoDs as well as public.
Brown's Approach	**Improvement in delivery mechanism**- Internal efficiency of the treasuries has improved to a great extent. Receipt of pension cases, processing and discharging of orders, viz. Pension Payment Order, Gratuity Payment Order, Commutation Payment Orders etc. are streamlined at Joint Director offices improving the speed and efficiency in disposing the cases
Sustainability/ Scalability/ Profitability	The project was initiated by the Department of Treasury, Government of Chattisgarh, and the software solution was provided by NIC. The introduction of the software has introduced a budget control mechanism (control over drawls at field level)

Diffusion of ICT and Output and Employment Multipliers in Key Indian States